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THE
ENTOMOLOGIST'S
MONTHLY MAGAZINE:

CONDUCTED BY

C. G. BARRETT, F.E.S. R. McLACHLAN, F.R.S.
J. W. DOUGLAS, F.E.S. E. SAUNDERS, F.L.S.
W. W. FOWLER, M.A., F.L.S. H. T. STAINTON, F.R.S.

VOL. XXII.

> Nihil ad Historiæ Naturalis incrementum magis proficere posse putarem, quam si plures homines, in qualibet regione, naturalia omnia sedulo describerent.—*Scopoli.*

LONDON:
JOHN VAN VOORST, 1, PATERNOSTER ROW.
1885-86.

LIBRARY OF THE
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FEB 21 1901

LONDON:

NAPIER, PRINTER, SEYMOUR STREET, EUSTON SQUARE.

MDCCCLXXXVI.

THE
Entomologist's Monthly Magazine

VOLUME XXII.

EDITORIAL NOTICE.

The Rev. W. W. Fowler, M.A., F.L.S., of the School House, Lincoln, so well-known in connection with British *Coleoptera*, has kindly consented to fill the vacancy on the editorial staff occasioned by the death of Mr. Rye. His colleagues commend him to the favourable consideration of the supporters of this Magazine.

1, Paternoster Row:
May, 1885.

ON THE VALUE OF THE COSTAL FOLD IN THE CLASSIFICATION OF *TORTRICES*.

BY CHAS. G. BARRETT.

Mr. Warren's recent discovery (Ent. Mo. Mag., xxi, p. 190) of the identity of my *Dichrorampha herbosana* (Ent. Mo. Mag., ix, p. 27) with the original *D. tanaceti*, of Wilkinson, by means of type specimens taken by Mr. Thompson at Crewe, and his suggestion that the species placed in most of our cabinets under the name of *tanaceti* (*-ana*) should be called *saturnana*, has had the effect of again drawing more particular attention to this very difficult group.

In my own collection I have as follows—besides *herbosana* = *tanaceti*, Wlk.:—

(1st.) Under the name of *tanaceti*, 8 ♂ and 2 ♀ from Bristol, 6 ♂ and 2 ♀ from Exeter, 3 ♂ and 3 ♀ reared by Mr. Elisha from larvæ in (I think) tansy roots (*Tanacetum vulgare*), and 16 ♂ and 4 ♀ taken by myself near Pembroke among the same plant. None of these males have the slightest indication of a costal *fold*, though in many of them the anterior margin is slightly turned up.

(2nd.) Also under the name of *tanaceti*, 10 ♂ and 4 ♀ from the Pembrokeshire coast, not among tansy, and 5 ♂ and 1 ♀ from a quarry at Plymouth, so closely resembling No. 1 that the females are absolutely alike, and the males are only distinguishable from their possessing a very strong and well marked costal fold.

(3rd.) Under the name of *saturnana*, 2 ♂ from the Isle of Wight, and 1 ♂ from Hungerford, Wilts, smaller than the last two species with narrower wings, and with smaller scales. These are quite devoid of the costal fold.

(4th.) Also under the name of *saturnana*, 1 ♂ from Teignmouth, and 1 ♂ from Darlington, having the costal fold quite distinctly, very slightly larger than No. 3, and *rather* more brightly clothed with yellowish scales and leaden lines.

(5th.) *Plumbana*.—Very numerous specimens from many localities, all the males destitute of the costal fold. These are of the same size as Nos. 3 and 4, with rather broader wings and fewer yellowish scales.

(6th.) *Plumbagana*.—Many specimens from various places, with narrower wings than any of the preceding, and brighter metallic lines, but variable in size, and in abundance of the yellow scales, all the males having the costal fold, except

(7th.) Under the name of *plumbagana*, 2 ♂ from Galway, quite like the darker *plumbagana* in form and width of wings, but without the costal fold. Twenty-five years ago I took many specimens of this form in the County Galway, but damp, from many journeys and moist climates, injured them, so that the rest were destroyed.

(8th.) Among my continental types, 3 ♂ from Prof. Zeller, labelled *saturnana*, two of them having also *Heinemann's* label on the pins, one of which last has the costal fold *most distinctly*, and the other two are *as distinctly* destitute of it. Otherwise these three are absolutely alike, they cannot be separated by any other character that I am able to see. They resemble Nos. 1 and 2 pretty closely, but are yellower.

In the classification adopted by Wilkinson these species—so closely allied that they can only be separated by a slight structural character, hardly visible to the naked eye, and obtaining only in one sex—would be placed, not only in separate genera, but in distinct families, widely separated from each other. It is desirable, therefore, to examine more closely into the value of this peculiarity of the males of so many species of *Tortrices*—the costal fold—which is entirely ignored in the arrangement of Guenée and Doubleday, but which forms one of the bases of classification in the arrangement followed on the continent, and was regarded by Wilkinson as of such vital importance, that he instituted the family *Plicatæ* solely to receive all the species favoured with this appendage. The value of such a classification as this is best shown by the table below, in which some of the genera and species of the family *Plicatæ* are arranged side by side with those placed in *other* families widely apart, but obviously closely allied to them in form and habits.

PLICATÆ (with fold).	OTHER FAMILIES (without fold).
Lozotænia sorbiana, rosana, xylosteana, Podana, roborana, costana, &c.	Fam. TORTRICIDÆ. *Tortrix dumetana, diversana, heparana, ribeana, corylana, cinnamomeana,* &c.
Catoptria cana, fulvana, Scopoliana, cæcimaculana, expallidana.	Fam. CARPOCAPSIDÆ. *Grapholitha conterminana, aspidiscana, tripoliana, æmulana, candidulana.*
Phlœodes tetraquetrana, immundana, crenana.	Fam. ANCHYLOPERIDÆ. *Steganoptycha nævana, geminana.*
Dichrorampha tanaceti, plumbagana, &c.	Fam. CARPOCAPSIDÆ. *Endopisa saturnana, plumbana,* &c.

Indeed, a *simple enumeration* of the species and genera crowded together in the family *Plicatæ*, of Wilkinson (which would occupy too much space here), would seem sufficient to condemn it.

In the arrangement followed by Wocke, this incongruity is cleverly avoided, since, while the presence, or absence, of the costal fold is relied upon (I think, *always*) as a generic (or sub-generic) character, the genera with, and without, folds are so skilfully alternated that, to a great extent, the actual relationships between the species are fairly maintained. But here there has evidently been a serious difficulty, in the presence of a large number of "folded" species which could not well be distributed in the same manner without the manufacture of a host of new genera. They have, therefore, been massed together under the generic name of *Pædisca*. Here are *Catoptria cana, fulvana, Scopoliana, expallidana,* and *cæcimaculana,* along with *Coccyx tædella, Lithographia nisella, subocellana (campoliliana)*, and *Penkleriana, Pædisca ophthalmicana, Solandriana, semifuscana,* and *sordidana,* with the four little *Phlœodes*, the four larger *Spilonotæ*, and the whole genus *Halonota*, lumped together in one unwieldy genus.

It must be borne in mind that this costal fold is solely an ornament or appendage of the male sex. I am not aware of any case in which a female moth shows any tendency towards assuming it. It consists of a small flap of membrane, usually occupying the basal portion of the costal or anterior margin of the fore-wings, from one-third to one-half of their length, which flap of membrane is turned back over the wing exactly in the same manner as the breast flap of the collar of a coat. It is usually covered with scales of a rather coarser texture than those of the remainder of the wing, and placed, more or less, in a different direction, so that, though they closely assimilate in colour to the upper-side of the wing, the edge of the fold can generally be seen, by the aid of a lens of slight power, from the *different direction of the scales*, even though the fold may be pressed very closely down to the surface. When, by any accident, this fold is raised, the space beneath is seen to be thinly clothed with shining *white* scales, some of which take the form of long hairs, and lie longitudinally under it, but if the fold is turned forward, these hairs rise up and even form a most delicate fan-like tuft, similar to that on the fore-legs of male *Hypenidæ*. I have a *Penkleriana* showing this very beautifully.

In examining the *Peroneæ*, none of which are furnished with the fold, it will at once be noticed that, in many species, such as *Teras effractana*, the *Leptogrammæ*, *Peronea hastiana*, *abietana*, *umbrana*, *Logiana*, and others, the *shoulder* of the strongly arched costal margin is *rough from projecting scales*. It is exactly this portion with its projecting scales which in so many species is doubled back and forms the "fold."

In what may be regarded as its *typical* state, the fold is, as I have already said, a narrow slip of doubled-down margin, extending from the base one-third or one-half the length of the anterior margin; *Spilonota*, *Lithographia*, *Phlœodes*, *Pœdisca*, *Catoptria*, and *Halonota*, of Wilkinson, for examples; but in *Ptycholoma Lecheana* and *Capua ochraceana* it occupies more than one-half the costal margin, and in *Ditula angustiorana* and *Pardia tripunctana* fully two-thirds, and in these four species it is very neatly folded down throughout its length. Perhaps *Ditula angustiorana* may be regarded as an exponent of the highest exaggeration of this structure, for its fold is also so *broad* as to occupy one-third of the width of the wing near the base.

Lozotænia Podana (*pyrastrana*) and *costana* have the short, narrow, typical fold, but *L. roborana*, *xylosteana*, and *rosana* have, in addition, the middle portion of the costal margin *rolled* back very distinctly to the same extent as it is *folded* down in *D. angustiorana*.

In *L. unifasciana* the fold does not commence at the base, but, at a short distance, begins gradually a long fold, which occupies—folded or rolled—a large portion of the costal margin. In *L. sorbiana* and *Lafauryana* it is placed still further from the base, and is quite destitute of the *typical* structure, being simply a turned down edge of the *shoulder* of the wing, not closely appressed, and without the white scales and long hairs.

In *L. musculana* this divergence is still greater, the fold consisting simply of a tuft of long reflexed scales, which *appears* like a decided fold, but which, when accidently turned forward, shows a strong tuft of coarse scales arising from the *under* surface of the margin, and looking like the singular "prominent" tuft on the wings of the *Notodontidæ*, though in a very different position.

On the other hand, *Tortrix dumetana*, *diversana*, *ribeana*, and *corylana*, which have *no* fold, possess the rolled back margin along the middle portion of the costa, often very strongly developed, and this structure is shown in a less degree by *T. Forsterana* and *heparana*, while in *T. ministrana* nearly the entire anterior margin is slightly raised in the same direction.

This tendency to a reflexed margin is shown by very many species in various groups, such as *Argyrotoza Conwayana*, *Penthina pruniana*, *Calosetia nigromaculana*, *Coccyx nanana*, and *Pamplusia mercuriana*. It is also observable in *Hypermecia cruciana*, and especially in its close ally, *H. augustana*, in which the raised costal edge is very conspicuous. In *Grapholitha candidulana* this structure, towards the base of the wing, amounts almost to a fold, and it is instructive to notice that, while Wilkinson places it (under the name of *Wimmerana*) in his *non-folded* family *Stigmonotidæ*, Wocke includes it in his "*folded*" genus *Pædisca*, very near to *expallidana* and its allies. On the other hand, *parvulana*, which has a typical fold, is included in the *Plicatæ* by Wilkinson, but by Wocke is placed in the (non-folded) genus *Pelochrista*, with *Albersana*. It is fair, however, to add that he marks the species as unknown to him, and only *quotes it from Wilkinson.*

Œnectra Pilleriana, placed by Wilkinson in his (non-folded) family *Tortricidæ* (and by Wocke between a folded and a non-folded genus), actually has a very slight and narrow fold, starting from the base of the costal margin, and consisting of reflexed scales on a very narrow membrane, and in some individuals a large extent of its costal margin is turned back.

But the most remarkable circumstance that has come under my notice is the totally unexpected discovery of a fold in one of the species of *Eupœcilia*, a genus, and belonging to a family, in which there is usually no indication of anything of the kind. The species is *maculosana*. It has a very narrow, straight fold of membrane and dark reflexed scales, broadest at the base, and extending one-third of the length of the anterior margin. I have before me eighteen males of this species, in every one of which this structure is distinctly visible. My continental type of *purgatana* also has it, but this, I think, is only a small form of *maculosana*. I think that if Wilkinson had noticed this structure, he would have felt some perplexity about his family *Plicatæ*.

It thus appears to me that the costal fold is clearly proved to be of no value as a *family* characteristic, and when we find the typical fold of *Lozotænia Podana* and *costana* associated with the folded and *rolled* margins of *roborana*, *xylosteana*, and *rosana*, and with the false folds, with or without rolled margins, in *unifasciana*, *Lafauryana*, and *musculana*, and then closely allied to them the non-folded species, such as *dumetana* and *diversana*, which have also the rolled margin, the raised margins in others, and in many other groups, the barely perceptible folds in *Pilleriana*, *candidulana*, and *E. maculosana*, and, finally, the intimately close alliance between folded and non-folded species of *Dichrorampha*, the conclusion seems forced upon us that this costal fold is equally valueless as a generic character.

After studying this last *Dichrorampha-Endopisa* group of species, I was almost inclined to doubt its value even as a *specific* character, but in the course of careful consideration of nearly all our native species, I find its presence or absence, as the case may be, so thoroughly reliable in each species in other groups, and the form which (when present) it takes so true and accurate in the individuals of each species, as to render it highly improbable that a character so reliable in all other species should be variable and uncertain in the single group of the *Dichrorampha*. So that although it is almost impossible to find reliable characters by which to distinguish the different forms which I enumerated at the commencement of this article—Nos. 1, 2, 3, 4, 7, and 8—it will be necessary to search for such characters, and to determine if possible at some future time, the name and description which fit most accurately to each. This task will be all the more difficult from the fact that scarcely any of the published descriptions are minute enough to meet the case, but will generally serve for several of these forms almost equally well.

68, Camberwell Grove, S.E.:
April, 1885.

DESCRIPTIONS OF TWO NEW SPECIES OF *ARADIDÆ*.

BY DR. E. BERGROTH.

ARADUS ORIENTALIS, *n. sp.*

Elongatus, postice nonnihil latitans, opacus, granulatus, luride testaceus, abdomine præsertim subtus in sanguineum vergente; pronoto quadricarinato; angulis posticis segmentorum abdominalium admodum prominentibus. Long., ♀, 9 *mm.*

Mas ignotus.

Femina: hemelytris abdomine brevioribus et multo angustioribus; segmento quinto ventrali retrorsum acclivi, margine postico medio recto, linea media segmenti lateribus longitudine æquali; segmento sexto retrorsum declivi, sub-quadrato, basi longitudine vix latiore, apicem versus paullo dilatato, angulis posticis paullo productis, præcedenti medio longitudine æquali et segmentis genitalibus simul sumtis æquilongo, lobis lateralibus explanatis angulis posticis apicem segmenti genitalis secundi attingentibus et fere superantibus, a lobis genitalibus sat longe distantibus; segmento genitali primo secundo longiore, margine apicali medio parum angulato-inciso, lobis explanatis marginibus interioribus ab apice segmenti genitalis secundi valde divergentibus, marginibus exterioribus nonnihil ante apicem angulato-prominentibus, parte basali cum lobis segmenti sexti ventralis conjunctis.

Patria: Japan (*D. Donitz*). Mus. Berol.

Species insignis, nullæ huc usque descriptæ propius affinis, a ceteris inprimis structura abdominis coloreque divergens. Caput sub-quadratum, latiusculum, longitudine tamen angustius, pone oculos parum angustatum, inter hos foveis duabus postice in lineolas impressas intus sub-curvatas convergentes et angulariter conjunctas transeuntibus præditum; antennis longiusculis articulis duobus ultimis ceteris latioribus, articulo secundo primo fere triplo longiore, cylindrico, articulo tertio secundo paullo breviore, ab apice basin versus sensim leniter attenuato, quarto tertio perpaullo longiore, apicem versus leniter angustato; spinis lateralibus extus inter se fere parallelis, denticulo nullo distincto armatis; dente ante-oculari, perminuto; rostro coxas anticas vix superante. Pronotum capite circiter triplo latius, lateribus sub-angulariter perquam ampliatis et reflexis, margine antico-laterali leviter rotundato, minute denticulato, prope apicem leviter sinuato, margine postico-laterali sub-recto, minus reflexo, haud denticulato, sub-integro; angulis posticis retrorsum obtuse latius lobulato-productis; margine postico ante scutellum lenissime trisinuato; disco quadricarinato, carinis duabus intermediis fere parallelis ante medium admodum approximatis, exterioribus apicem versus convergentibus et ante medium pronoti evanescentibus. Scutellum sub-triangulare, apice obtuso, lateribus elevatis, ad basin sub-parallelis. Abdomen lateribus admodum reflexum, angulis posticis segmentorum præsertim posteriorum valde prominentibus, ut latera abdominis serrato-incisa evadant; ventre convexo, medio sub-plano. Hemelytra basi nonnihil ampliata et reflexa, margine granulato-crenulato; corio costis dense, interstitiis remote, minute granulato; membrana opaca, sub-rugosa, lurido-testacea, concolore. Pedes, præsertim tibiæ, graciliores, femoribus paullo infuscati.

The ground-colour of the abdomen of this species is, especially on the under-side, light sanguineous, this colour is, however, in some degree concealed by the minute pale granules spread over the surface. The greatest convexity of the venter is between the fifth and sixth segment. The last two articles of the antennæ are, at least in the described specimen, compressed.

ARADUS EMARGINATUS, *n. sp.*

Elongato-subovalis, opacus, fusco-niger, rostro pedibusque flavo-annulatis; pronoto quadricarinato; angulis posticis segmentorum abdominalium prominentibus. *Long.* ♂, 6.5 *mm.*

Mas: hemelytris abdomine angustioribus, sed parum brevioribus; segmentis ventralibus quinto et sexto medio cum segmento genitali convexis; segmento genitali ad dimidium apicalem rimæ genitalis anguste luteo, lobis explanatis hujus segmenti admodum reflexis, marginibus interioribus rectis, valde divergentibus, exterioribus sub-angulato-rotundatis, ante apicem denticulis duobus minutissimis armatis; lobis lateralibus segmenti ultimi abdominis a lobis genitalibus distantibus.

Femina ignota.

A. emarginatus, Reut. in sched.

Patria: China (Peking). Coll. Fallou.

Antecedenti abdominis structura similis, sed cetera optime distinctus. Caput pone oculos angustatum, ad basin denticulo minuto lineari utrinque armatum, inter oculos impressione U-formi præditum; antennis nigris, articulo primo brevi, secundo hoc plus quam duplo longiore, sub-cylindrico, apice perpaullo incrassato, tertio secundo paullo longiore, apicem versus parum attenuato (art. quartus deest); processu apicali basin articuli secundi antennarum paullo superante; spinis lateralibus sat validis, acutiusculis, divergentibus, medium articuli primi antennarum superantibus, extus basi obsoletissime unidenticulatis; dente anteoculari distincto; rostro coxas anticas aliquantum superante, nigro, articulo penultimo et antepenultimo apice flavido. Pronotum lateribus admodum rotundato-ampliatum et reflexum, marginibus antico-lateralibus subserrato-denticulatis, ante medium angulariter emarginatis et deinde sub-rectis, convergentibus, haud ampliato-reflexis, denticulis fere destitutis; disco quadricarinato, carinis intermediis sub-parallelis, mox ante medium approximatis, carinis externis brevibus, medium pronoti haud superantibus; angulis posticis retrorsum obtuse productis, deflexis. Scutellum elongatulum, lateribus elevatis, extrorsum levissime rotundatis, basin versus sub-parallelis. Abdomen sub-ovatum, depressum, lateribus ob angulos posticos segmentorum abdominalium præsertim posteriorum admodum prominentes sub-serrato-emarginatis. Hemelytra basi ultra marginem abdominis paullo ampliata ibique macula parva lutea (subtus quoque distincta) ornata; corio area interna lineolis nonnullis luteis prædito; membrana obsolete sub-cinereo-interstincta. Pedes fusconigri, femoribus basi tibiisque prope basin et apicem flavotestaceo-annulatis (annulo sub-basali tibiarum ægrius distinguendo), geniculis anguste tarsisque flavopiceis.

The discovery of these two species is of some interest, as no species of the genus *Aradus* was hitherto known either from Japan or China.

Besides *A. orientalis*, there is another Japanese species amongst the *Aradidæ* of the Berlin Museum, viz., *Mezira scabrosa*, Scott, which belongs to the genus *Brachyrhynchus*, Am. et Serv. Of the genus *Mezira* I shall give more account in another place.

I take this opportunity of mentioning that I am preparing a revision of the genus *Neuroctenus*, Fieb., and shall be glad to receive contributions.

Helsingfors: *April 7th*, 1885.

DESCRIPTION OF *COLEOPHORA PALUDICOLA*—A SPECIES NEW TO SCIENCE.

BY H. T. STAINTON, F.R.S.

COLEOPHORA PALUDICOLA, *n. sp.*

Exp. al. 4 lin.

Fore-wings uniform dark greyish-brown, shining, with the costa narrowly whitish to a little beyond the middle; no other markings are visible.

Antennæ dark grey, faintly annulated with whitish.

Head and thorax shining dark greyish-brown, same as the fore-wings.

This is smaller than *Coleophora obtusella*, and of much darker ground colour, and it wants the pale streaks of that species. In size and colour it comes nearer to the German *C. musculella*, which feeds on *Dianthus superbus*, but that has several neat pale streaks on the fore-wings, which are besides much more acuminate than in *C. paludicola*. Small specimens of *C. badiipennella* come very near to this new species in size, but they have not the pale costa so narrow, nor so sharply defined; moreover, in them the fore-wings are very much browner.

Five specimens were captured by Mr. G. Coverdale in salt-marshes near Shoeburyness in July, 1884, who says:—"It occurs flying with *Coleophora salinella* amongst the mixed herbage of the Salterns. I have taken the insect at rest on *Suæda maritima*, *Artemisia maritima*, *Atriplex*, and should be inclined to regard *Suæda maritima* as the most likely food plant. It is not common, for three days' work produced but five specimens."

Mr. Coverdale thinks the fore-wings have a bronzy-green tinge, but I cannot see the insect in that light myself.

Lewisham, London:
May 19th, 1885.

ON THE GENUS *AULOCERA*, BUTLER.

BY H. J. ELWES, F.L.S.

My attention having been called to Mr. Butler's remarks on this genus in Ent. Mo. Mag., xxi, 245, as well as to his revision of it in the 4th volume of the same journal, p. 121, I wish to clear up the confusion he has brought into it, partly by hasty description based on insufficient material, and partly by carelessness in reference to previous authors. I may say, however, that Messrs. Marshall and De Nicéville have published, in the "Butterflies of India," such a complete and accurate account of the genus, that I need say very little; and as both of these gentlemen know the species in life as well as in the cabinet, and have caught and examined large numbers of specimens, I have little doubt that their arrangement is correct, so far as our present knowledge extends.

My own collection contains about 100 specimens, picked from a much larger number which have passed through my hands, and I find, after arranging it, that my conclusions are identical with those of Messrs. Marshall and De Nicéville.

The question as to whether *Aulocera* is a good genus, is one which cannot be settled without a careful examination of many species of *Satyrus*, for which I have not now time; but it appears to differ from the majority of this group principally, if not entirely, in the form of the antennæ, and agrees in this respect with *S. Circe*, Fab. (*Proserpina*, Schiff.), which, by European entomologists, has not been considered worthy of separation from the other species of *Satyrus*.

Blanchard first began the confusion by describing and figuring, in Jacquemont's voyage, two good species as two sexes of one—*A. brahminus*. Both his figures seem to represent males, the lower one being evidently *Swaha*, Koll. This fact, however, was overlooked by Messrs. Butler and Moore. Kollar, in 1848, which is the date on the title page of vol. iv, pt. 2, of Hügel's Reise (not 1844 as quoted by Butler and Moore), described and figured *Swaha*, *Padma*, and *Saraswati*, all of which stand under these names. In 1857 Moore, in Cat. Lep., E. I. C. Museum, describes the ♂ of *Padma* as *Avatara*, and refers both of Blanchard's figures to *Saraswati*, which is most distinct from either.

In 1857, Butler describes (in Ent. Mo. Mag., iv) from a single example of uncertain origin, *A. Scylla*, which I fully agree with De Nicéville in believing to be a dwarfed specimen of the alpine form of *brahminus*, and in the same volume Lang describes more typical specimens of the same form as *A. Werang*.

Marshall and De Nicéville clear up all these mistakes in the Butterflies of India, and are now attacked by Butler, who does not like his species criticised by others, especially if they are new to the work.

With regard to the locality assigned to *A. Scylla*, Mr. Butler's ideas of geography must be vague, if he does not see the insufficiency of his excuse, that because Mr. Duthie found it in Kumaon at 12—14,000 feet, therefore, it is reasonable to expect it to occur also in the low flooded plains of Sylhet, 700 or 800 miles away; and as no species of the genus has been found even in the Khasia hills, from which most of the specimens in the British Museum labelled Sylhet probably come, it is incredible to any one who knows the nature of the country that the most alpine form of *Aulocera* should be found there.

With regard to the last paragraph of his paper, in which he describes the efforts of those who have tried to discover the uses and meaning of those curious sexual characters in many species of butterflies as "pitiable nonsense," I will say nothing, as I have no doubt it will not be overlooked by entomologists who know far more of the subject than I do. Such an opinion would be, if accepted, more detrimental to science even than guessing (*ante* p. 246).

I here give a short table of the synonymy of the genus, with the dates and localities of my own specimens.

AULOCERA BRAHMINUS, Blanchard.

Sat. brahminus, Blanch. in Jacquemont's Voy., vol. iv, Ins., p. 22, T. ii, fig. 4, male, 1844?.

Specimens in Mus. H. J. Elwes:—

4 ♂ 1 ♀, Ser-ka-joth, North Mandi, N. W. H., 8000 feet, 24/6/83, 24/7/83.

1 ♂, Kulu, June; 8 ♂ 5 ♀, interior of Sikkim, July and August (Native Collector).

var. alpina? orientalis minor subtus pallidior.

8 ♂ 2 ♀, Chumbi Valley, Tibet, July and August, 1883.

var. alpina occidentalis subtus lutescens.

A. Scylla, Butler, Ent. Mo. Mag., vol. iv, p. 122, 1867.

A. Werang, Lang, *l. c.*, p. 247.

1 ♂, Kashmir, Lang; 1 ♂, Kashmir, Johnstone, 9000 feet.

1 ♂, Sanch Pass, 13,000 feet, August, Marshall.

6 ♂ 4 ♀, Lahoul, 5—27/8/84, 10—13,000 feet, Young.

A. SWAHA, Kollar.

Satyrus Swaha, Koll., in Hügel's Kaschmir, vol. iv, pt. ii, p. 444, T. xiv, figs. 1, 2 (1848).

5 ♂ 1 ♀, Ser-ka-joth, 28/7/83, 8000 feet.

2 ♂, Hazara, 9000 feet, Johnstone, 7/83.

1 ♂ 1 ♀, Kangra, Hocking.

4 ♂ 2 ♀, Simla, Marshall, 30/8/83.

var. fascia lutescente.

S. brahminus, Blanch., *l. c.*, figs. 5, 6, ♂.

4 ♂, Gulmurg, Kashmir, 9000 feet, 8/82; 1 ♂, Kashmir, Lang.

A. PADMA, Kollar.

Sat. Padma, Koll., in Hügel's Kaschmir, p. 445, T. xv, figs. 1, 2, ♀.

Sat. Avatara, Moore, Cat. Mus. E. I. C., p. 229, ♂ (1857).

3 ♂ 1 ♀, Sikkim (locality doubtful); 1 ♂, Simla, Marshall, May.

1 ♂, Mattiana, 9000 feet, 2/8/83; 6 ♂ 1 ♀, Praser Mt., N. Mandi, 24/6/83; 2 ♀, Kangra, Hocking.

A. SARASWATI, Koll., in Hügel's Kaschmir, vol. iv, pt. ii, p. 445, T. xv, 1, 2.

2 ♂ 1 ♀, near Khatmandu, Nipal.

2 ♂ 1 ♀, Sikkim ?.

3 ♂ 2 ♀, Ser-ka-joth, N. Mandi, 21/8/83, Young.

1 ♂ 2 ♀, Pangi Valley, N. W. H., 8/82.

I may say that I am not certain as to the Sikkim habitat of *Saraswati*, as though my specimens came from Darjeeling collections, they may have been sent from Kumaon. Mr. Moller, however, has taken specimens of *Padma* at 8000 feet near Darjeeling.

Preston, Cirencester:
April, 1885.

A swarm of Deiopeia pulchella in the Atlantic Ocean.—My friend R. H. Scott, Esq., F.R.S., Secretary to the Council of the Meteorological Office, recently gave me a good specimen of *D. pulchella*, which had been forwarded by Capt. Renaut of the sailing vessel " Pleione," one of those who keep a log book in connection with the office. A memorandum accompanying the moth stated that it was captured on March 27th, 1885, in lat. 0° 47′ N., lat. 32° 50′ W., the vessel at the time being homeward bound from Wellington (N. Z.), and had not touched at any other port. The position lies about 960 miles S.W. of the southernmost of the Cape Verde Islands, about 440 miles N.E. of the nearest point on the South American coast, and about 260 miles W.S.W. of the barren islet known as St. Paul. As the fact was interesting, I obtained, through the courtesy of Capt. Renaut, some additional information, of which the following is a summary:—

" There were a great many about the ship, many hundreds I should say, as parts of the rigging, spars, &c., were covered with them, and apparently two kinds, differently marked, but about the same shape. The wind for four days previously had been very light from various quarters, mostly N.W., N., and N.E., and many hours calm, with very little rain. The N.E. trade wind does occasionally extend to that position at that time of the year, but we did not get it until lat. 1° 0′ N., long. 33° 0′ W. I may say that I have frequently in that part of the ocean had moths and butterflies come on board."

The question now is:—Whence did these insects come? *D. pulchella* has not, I think, been noticed in South America. St. Paul's rock may almost be left out of consideration. I incline, therefore, to the Cape Verdes. The insects seized by some migratory instinct, or blown out to sea, would get caught in a strong N.E. trade wind, and be carried by it precisely to the position where they were found. It might be asked why, having got so far, are they not carried to South America? The reply is, that in the remaining distance they would get caught by the S.E. trade wind, and be driven back. After this experience in the Mid-Atlantic, is it surprising that stragglers of this pretty moth occasionally visit our islands?

In the collection of the British Museum there is a specimen of *D. pulchella* from the voyage of the "Rattlesnake," indicated as having been taken at sea in lat. 6° N., long. 22½° W. In the British Museum Catalogue by the late F. Walker, it is queried as from Madeira, but the position on the map renders the Cape Verdes (or even the west coast of Africa) more probable. — R. McLachlan, Lewisham, London: *May 9th*, 1885.

Chauliodus insecurellus bred from Thesium humifusum from the Isle of Wight. —The announcements (Ent. Mo. Mag., xxi, 238, 255) that this species had been reared by Mons. A. Constant from larvæ found in Gascony must have prepared the readers of the Ent. Mo. Mag. to expect that Mr. Stainton's surmise that its larva feeds in this country on *Thesium humifusum* would shortly be confirmed. This I am now able to do.

Towards the end of May, 1884, I took a female of this species in the Isle of Wight. On cutting a tuft of the food plant on the 11th inst. in the same locality, I found among its branches two pupæ in the netted cocoons so characteristic of the genus *Chauliodus*, and in the course of the morning took several others. From these pupæ a few specimens of *Ch. insecurellus* have since emerged. I noticed in one of the cocoons a larva whose markings did not seem to have changed much, but hoping to find the feeding larvæ later in the year, did not take a description of it. The imago when at rest looks curiously like that of *Eupœcilia anthemidana*.—W. H. B. Fletcher, Fairlawn, Worthing: *May 17th*, 1885.

[I gather from the above that this species, like its congener *Ch. chærophyllellus*, is double-brooded, but with this great difference in the habit of the two species, that whereas *Ch. chærophyllellus* emerges late in autumn and hibernates in the perfect state, *Ch. insecurellus* would appear to hibernate in the pupa state, or perhaps rather as spun up, but unchanged, larvæ.—H. T. S.]

Dytiscus marginalis found in salt water.—On the 11th of this month I captured a female specimen of *Dytiscus marginalis*, Sturm, swimming in the sea at Glandore. Is it usual for this beetle to frequent the sea? I never found it in salt water, nor do I see any notice of this peculiarity in the books on *Coleoptera* I possess. My insect was quite at home in its salt water element, and was making good its escape when taken. I send the beetle.—C. Donovan, Jun., Westview, Glandore, Leap, Co. Cork: *May 12th*, 1885.

Cassida chloris, Suffrian.—I am able to corroborate this (Suff., Stett. ent.

Zeit., v, p. 188; Boh., Mon. Cass., ii, p. 384, Suppl., p. 307; Sharp, Ent. Mo. Mag., viii, p. 84; Rye, Ent. Ann., 1872, p. 91) as a British species. I have two specimens taken by myself at Shipley, near Horsham, out of flood-rubbish from the Adur, and which I had doubtfully for some time placed with *C. sanguinolenta*, and had afterwards removed from there, doubtful what to do with them. Lately, when revising Mr. Lewis' Japanese *Cassidæ*, I examined my British species again, and then saw that these were quite distinct from any English species known to me. I accordingly showed them to Dr. Sharp, who at once recognised them as *C. chloris*, Suffrian. I have compared them with his specimen, and I have no doubt they are one species, and having also compared them with Boheman's description, I quite think they are the species to which Dr. Sharp has referred the specimens taken by himself and Mr. Lennon in Dumfriesshire.

Cassida chloris cannot well be compared with any species in our list but *C. sanguinolenta*; from that species its longer, more parallel build, coarser sculpture, and different colour, easily separate it. It is, indeed, only like it in having a reddish base to the elytra; but this part is not blood-red, but brownish. Its colour in life is green, similar in tint to the common *C. rubiginosa*, but at the base several metallic golden specks upon the red part may be seen, and these at once attracted my attention. The thorax and elytra are rather coarsely punctured, on the latter the punctures are in irregular and somewhat interrupted series, becoming confused towards the apex; the legs are yellow; the body, head, coxæ, and thickened part of the antennæ are black. These specimens were taken in October, 1882.

C. chloris has been detected in Germany, Austria, and Hungary, it is also included in Grenier's Catalogue of French *Coleoptera*. For a more full account, *cf.* Kraatz, Berl. ent. Zeits., 1874, p. 92.—H. S. Gorham, The Chestnuts, Shirley Warren, Southampton: *May 14th*, 1885.

Note on Lecanium prunastri?—On the 5th of April I found on some shoots of hawthorn (*Cratægus oxyacantha*) about three years old, growing from the base of a tree in a sheltered and shaded corner of the garden, several hibernated scales of a *Lecanium*, both male and female. The sexes are easily distinguishable; the scales of the ♂ being white and conspicuous, thin, and of delicate material, those of the ♀ dull brown, assimilating to the colour of the bark of the twigs, therefore not easy to see, and tough. The form in each sex is the same, a long oval; but while the ♂ is affixed to any part of the bark, the ♀ is always towards the extremity of the twig, in or near the axil of a thorn or lateral shoot.

I cut off about a dozen shoots and put so much of each as had adherent scales into a wide-mouthed white glass bottle. I inspected them daily until April 24th, without detecting any exit; I omitted to look on the 25th, but on the 26th I saw, at the bottom of the bottle, six males already dead and one alive; since then no more have appeared. I also found some exuviated skins of the pupæ or nymphs* which had fallen down when the imago emerged from the shell, which had served as a cocoon, and which in some cases was broken; other scales were left entire on the shoot. The ♀ scales till now remain unaltered, but I find that some which I left *in situ* in the garden have greatly developed, the hibernated scale being borne up by and still adhering to the new swollen scale growing up beneath it, the increase of bulk being doubtless due to recent impregnation of the ♀ in residence.

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* "Pupa" may not be a good term to apply to the penultimate state of an ametabolous insect, but "Nymph" (derived from the classical half-veiled *Nymphæ*, female deities;—Lamarck's name for the pupæ of all insects with an incomplete metamorphosis—is at best not a happy application of the term, and is singularly inappropriate when, as in this case, the form is evident only in the male sex.

The species of the *æsculi*-group of the genus, and to which this belongs, appear to have great general resemblance to each other in all the stages of their life, and yet to possess good distinctive characters, which, however, are not easy to appreciate, by the common want of specimens in the different states for simultaneous examination and comparison—a condition enhanced by the paucity of collectors and the special difficulty of obtaining at all the short-lived imago of most species.

The present examples fairly agree with Dr. Signoret's description of *L. genevense*, Targ.-Tozzetti (Ess. Cochin.), which species feeds on the hawthorn. But Dr. Signoret's remark that the comparison of the scale of the ♂ of *L. genevense* with that of *L. prunastri*, Fonscol., affords the best means of differentiating the species (for although both are waxen, the former is smooth as in most of the species, and the latter is rugose as if surmounted with minute tubercles), and the character of the latter being exactly that of the scales now under notice when viewed with a lens, I am induced to believe that the species is the *L. prunastri*. Of this, however, the ♂ imago is not described, nor is it stated by Dr. Signoret on what plant the species was found by him. Boyer de Fonscolombe (Ann. Soc. Ent. France, iii, 211, 1834) described only the adult ♀ scales which he found in the month of March on the branches of the sloe (*Prunus spinosa*).—J. W. DOUGLAS, 8, Beaufort Gardens, Lewisham: *May 6th*, 1885.

P.S.—Between the 26th April and the 15th May no more males appeared, but on the latter day two more came out of their "scales." Thus the period of emergence ranges over three weeks, even when, as in this case, the conditions of existence remain the same.—J. W. D.

The Sale of the late Major Parry's Collection and Library.—As this sale, which took place at Stevens' Rooms on the 16th May, concerned what may be termed a representative collection, so far as regards certain groups, we give a brief analysis of the results. The noted collection of *Lucanidæ* was remarkable for the number of species and the fine condition of the specimens. It realized nearly £300. A pair of *Rhætus Westwoodii*, Parry, sold for £8; a pair of *Rhætulus crenatus*, Parry, sold for £2 10s. In several other lots over £1 was obtained for each specimen. The *Cetoniidæ* were sold for about £170: the genus *Goliathus*, represented by about 25 examples in all, obtained nearly £30 of the sum already mentioned; a pair of *G. giganteus* realizing £10 10s. 6d., and a pair of *G. albosignatus* £7 10s.; the now common *G. cacicus* cost its purchaser over 5s. per specimen. A small series of 13 specimens of *Euchiridæ* fetched over £12, nearly half of the amount being represented by the cost of a pair of *E. Dupontianus*. A very incomplete set of *Paussidæ*, but including some remarkable species, realized over £20. The whole of the beetles were sold for under £600; but the prices secured for some of the lots in the more obscure groups seemed utterly out of proportion to those obtained for others, and suggested the idea that the value of beetles depends on their size. The principal purchasers of the insects were the British Museum, and Messrs. R. Oberthür, H, Deyrolle, Armitage, and Janson. The Library sold for a little over £200. It was not extensive from a general point of view, but comprised several complete series, and other scarce books. The "Annales Soc. Ent. France" (complete) were sold for £43; the "Trans. Ent. Soc. Lond." (complete) realized £32; and the single thin vol. of the old Ent. Soc. Lond. (published in 1812) was considered to be worth nearly £2. Nearly £9 was obtained for "Laporte and Gory;" the Guérin-Méneville "Magasin" and "Revue" series obtained £14 (the three series combined). The most remarkable item, so far as regards the books, was that £18 was paid for Donovan's "Epitome of the Natural History of the Insects of New Holland, New Zealand, New Guinea, &c." (a thin volume published in 1805); we believe it now forms part of the new library formed in connection with the British Museum (Natural History) at South Kensington.

ENTOMOLOGICAL SOCIETY OF LONDON.—*May 6th*, 1885: R. McLACHLAN, Esq., F.R.S., President, in the Chair.

The President announced the death of Prof. C. T. E. von Siebold, one of the Honorary Members.

Mr. Pascoe exhibited a species of *Bruchidæ* bred by him many years ago from the seeds of a leguminous plant from South Brazil, and remarkable because the pupa was enclosed in a special firm cocoon.

Mr. C. O. Waterhouse exhibited, on behalf of Mons. Wailly, living larvæ of *Hemileuca maja*, which he believed to have been reared from the egg for the first time in Europe. They fed upon hawthorn, but their natural food was oak.

Mr. Billups exhibited a large quantity of living and dead examples of the oak-root gall-maker, *Aphilothrix radicis*, recently bred, together with its inquiline *Synergus incrassatus*, and its parasite *Callimome nobilis*. He also exhibited two living *Carabus auratus*, found in bunches of French lettuces in the Borough Market.

Mr. E. P. Collett exhibited an oak twig with numerous hard excrescences upon it, and asked if they were possibly due to the agency of insects or *Acari* in the first instance. The President said that excrescences of a similar nature on other trees had been attributed to *Phytoptus*, but in this case they more resembled what was ordinarily termed "canker," and which had been tolerably well proved to be owing to fungi.

Mr. H. Goss, in presenting a series of *brochures* by M. Brongniart on fossil insects, read a sketch of the recent discoveries of gigantic fossil insects in palæozoic formations in France, and commented upon the various schemes of classification prepared for them, M. Brongniart in particular considering them links between *Orthoptera* and *Neuroptera*, and proposing for them the ordinal term "Neurorthoptères." The President, Mr. Waterhouse, and others took part in the discussion.

Mr. Enock read the first part of a paper on his experiences of the habits, &c., of the English Trap-door Spider, *Atypus piceus*, as observed by him at Hampstead and Woking, entering fully into the life-history of the species. His remarks more especially concerned the ♂, and he promised to refer to the ♀ in the concluding portion of the paper. Mr. Stainton and others took part in the discussion.

REVISION OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ.*

BY E. L. RAGONOT,

President of the Entomological Society of France.

Whilst preparing the continuation of my "Notes on the larvæ of British *Micro-Lepidoptera*," I was struck with the great differences which exist in the arrangement of the *Phycitidæ*, as given in Mr. Stainton's "Manual of British Butterflies and Moths," and that usually adopted on the continent. I had some thoughts of giving a list of the British species arranged according to Dr. Wocke's catalogue, which is founded on the works of Zeller and von Heinemann, but when I began to study the subject, I noticed that numbers of species were placed in genera irrespective of their structure; such a classification could not stand. I postponed, therefore, my notes on the larvæ, and have since studied nearly exclusively the *Phycitidæ* and *Galleridæ* of the whole world, thanks to the kind help of the late Prof. Zeller, Lord Walsingham, Dr. Staudinger, and many other friends, so that I have had an opportunity of examining nearly all the known species, and a great number of unpublished ones, with the object of writing a monograph of these insects.

The classification of the British species of *Phycitidæ* and *Galleridæ* in the "Manual" was based on those of Zeller and Guenée, but at that time the neuration of the wings was but little studied, the form of the antennæ and the palpi being the only characters taken into consideration. Von Heinemann attended to the neuration, and his classification is a great improvement on the others, but in his work there are numerous blemishes, some of which are quite unaccountable.

The study of the *Phycitidæ* remains very difficult, because only the male possesses the distinguishing characters in the antennæ and the palpi, so that the female might frequently be placed in different genera; hence, if the neuration be not carefully verified mistakes will arise, and species be placed by authors in wrong positions.

As my monograph of these insects is in preparation, I do not intend here to propose a classification of the British species as regards the sequence of the genera. I wish simply to discuss the names actually used, with the view of fixing the proper appellations both of the species and genera.

The early writers mixed the *Phycitidæ* and *Galleridæ* among the *Tineæ*, these, in the Vienna catalogue, being divided into *Tineæ Directipalpes* and *Tineæ Recurvipalpes*, forming thus a very unnatural classification.

Hübner, in his "text," separated the *Crambidæ*, *Phycitidæ*, and *Galleridæ* from the true *Tineæ*, terming them "*Tineæ Pyralidiformes*."

Fabricius was the first who created special genera for these insects; he established the genus *Galleria*, giving *cereana*, L. (*mellonella*, L.), as the type, and the genus *Phycis*, assigning as type his *spissicella*, but adding *Tin. boletella*, F., a true *Tinea*.

Haworth accepted the genus *Phycis* of Fabricius, and placed in it all the Phycids save *cribrella*, Hb., and *carnella*, L., which he put in a different division (*Curvipalpeæ*).

Hübner, in his Catalogue, divided the *Phycitidæ* and *Galleridæ* into fifteen genera. These genera were formed simply on the colouring or markings of the wings, so that the species are mixed without regard to their structure. The genera are too briefly characterized, yet, as they are the base of Zeller's nomenclature, it is necessary to examine them.

ACHROIA (Cat., p. 163).—This name has been modified by Zeller into *Achræa*. The genus comprises three species, beginning with *cinereola*, Hb. (*griseella*, Fab.). It was characterized by Stephens and Zeller, so that we should quote *Achræa* (Hb.), Steph., Zeller.

EUCARPHIA (Cat., p. 364) included two species of *Crambus* and *vinetella*, F., which latter becomes the type of the genus.

HYPOCHALCIA (Cat., p. 367) comprising *ahenalis*, *ænealis*, and *ærealis*, which are all synonymous with *ahenella*, S.V. This genus, being composed but of one species, has very properly been retained by Zeller and characterized by him (Isis, 1839, p. 178; 1848, p. 721).

ANERASTIA (Cat., p. 367).—This genus comprises three true *Hypochalciæ*, and, lastly, *lotella*, Hb.; it would have been proper to retain the name of *Anerastia* for the species of *Hypochalcia*, had not the latter genus been so distinctly indicated as I have explained. The genus has thus rightly been restricted by Zeller to *lotella*, and supersedes *Araxes*, Steph., which was formed of three distinct modern genera.

GESNERIA (Cat., p. 368).—This genus contains *canella*, S.V., and three *Scopariæ*, one before, and two after, *canella*, so that, evidently, the genus was intended for *Scoparia*, but as the latter genus was already established by Haworth, Zeller properly created the genus *Gymnancyla* for *canella*, S.V.

APHOMIA (Cat., p. 369).—This genus was created by Hübner for *sociella*, L., and is, therefore, good; it has been described by Zeller (Isis, 1848).

PEMPELIA (Cat., p. 369).—The genus *Pempelia* was composed of four ill-assorted species: *Colocalis* = *anellus*, S.V.; *quercalis* = *quercella*, S.V. (a Pyralid); *palumbella*, S.V.; and *ornatella*, S.V. Zeller divided the genus *Pempelia* into several genera: 1°. *Etiella*, Z. (type, *Zinckenella*, Tr.); 2°. *Eurhodope*, Hb., comprising *euphorbiella*, Z. (which I refer to *Nephopteryx*, the maxillary palpi not being at all developed into a pencil-like brush, as in other *Pempeliæ*), and *carnella*, L.; 3°. *Pempelia*, comprising all the *Pempeliæ* with smooth wings, including *ornatella*, S.V.; and, lastly, 4°. *Salebria*, Z., composed of species with raised scales before the first line, including *palumbella*, S.V. Von Heinemann adopts the last two genera as indicated by Zeller, but rightly mixes the species having raised scales with those with smooth wings, placing in the genus *Salebria*, Z., all the species with eight veins to the hind-wings, and in the genus *Pempelia* those with seven veins only; thus, *palumbella*, S.V., becomes the type of the genus *Salebria*, Z., and *ornatella*, S.V., that of *Pempelia*, Z.

NEPHOPTERYX (Cat., p. 370).—This is composed of a great variety of genera, so that it is impossible to say which is the type intended. Zeller (Isis, 1846) created the genus *Dioryctria* for the first species (*abietella* [S.V.], Zk.), placing the next species (*rhenella*) in his genus *Nephopteryx* (established in the Isis for 1839), so that *rhenella*, Zk., must be considered as the type of the genus.

ZOPHODIA (Cat., p. 370).—Of the three species included in Hübner's genus (*legatella*, Hb., *tumidella*, S.V., and *convolutella*) *tumidella* is placed by Zeller in his genus *Acrobasis*, *legatella* and *convolutella* are placed separately in the genus *Myelois* (Isis, 1839 and 1848); *Zophodia* forming a sub-genus for *convolutella*. Von Heinemann adopted the genus *Zophodia* for *convolutella*, Hb., and there is no necessity to change the name.

EPISCHNIA (Cat., p. 370).—The genus was composed of *diversalis*, Hb. (*polygonalis*, Hb.), *prodromella*, Hb., and *muscerdalis*, Hb. (*nebulella*, Hb.). The first, belonging to *Botys*, must be excluded; the second becomes the type of the genus which has been characterized by Zeller (Isis, 1839 and 1848).

MYELOIS (Cat., p. 371).—The only species given by Hübner is *medullalis*, Hb. (= *cribrella*, Hb.). Zeller placed in his genus *Myelois* all the species of which the antennæ, maxillary palpi, and wings in the male have no peculiar character, but he divided the genus into various ill-connected sub-genera. Von Heinemann did the same, including even Zeller's *Acrobasis*, whilst he removed several species to other genera. The genus has thus become the general refuge of all uncertain species, but as there cannot be any doubt as to the species which forms the type, I restrict the genus to those species alone which, like *cribrella*, have simple antennæ in the male, eight veins to the hind-wings, with veins 4 and 5 in the fore-wings forked.

SELAGIA (Cat., p. 371), comprising two *Crambi*, and *argyralis*, Hb. (*argyrella*, F.). This genus has been described by Zeller (Isis, 1848), and is composed of two species, *argyrella*, F., and *janthinella*, Hb., which have wrongly been placed since in the genus *Nephopteryx*, Z., proper.

EURHODOPE (Cat., p. 371), formed for *pudoralis*, S.V. (*rosella*, Sc.), and *carnealis* (*carnella*, L.). The type of the genus is *rosella*, Sc., which has been since placed in *Myelois*, auct., but as the type of *Myelois* is *cribrella*, Hb., the neuration of which is different from that of *rosella*, Sc., I adopt *Eurhodope*, Hb., for *rosella*, *cruentella*, Dup., &c., as well as for *legatella*, Hb., *suavella*, Zk., *advenella*, Zk., &c., as they cannot be distinguished structurally from one another, yet as the *legatella* group appears so different from the *rosella* group, I establish a sub-genus for the former under the name of *Rhodophæa*, Guenée.

CATASTIA (Cat., p. 372).—This is a good genus, and has been adopted by Zeller (Isis, 1839 and 1848) and Von Heinemann.

To return to other authors who treat on these insects.

Stephens adopted the genus *Phycis* for most of the species, creating only the genus *Oncocera* for *cribrella*, Hb., and *carnella*, L., and that of *Araxes*, comprising *lotella*, Hb., *ocellea*, Hw., and *ahenella*, S.V., all of which species had already been provided with generic appellations.

Treitschke followed Zincken, ignoring Hübner's genera, creating only the genus *Lispe*, changed by him afterwards into *Myelophila*, for *cribrella*, Hb.

Duponchel generally followed Treitschke, but created the genus *Diosia*, which is synonymous with *Catastia*, Hb. He placed the rest of the Phycids in the genus *Phycis*, save *carnella*, L., *argyrella*, F., *pudorella*, S.V., and *vinetella*, F., forming his genus *Ilythia*, and adopted Treitschke's *Myelophila* for *cribrella*.

Guenée, in his "Index Microlepidopterorum," attempted to classify the *Phycitidæ* and *Galleridæ*, partly following Zeller, but he does not seem to have studied the subject very carefully, so that he associates species belonging to very different genera. Some of his genera, however, are good, and must be retained.

Most writers on the subject have retained in their classification the name of "*Phycis*," either for a special genus or for the family in general, but the name had already been employed to designate a genus of fishes, as was properly observed by Curtis and Zeller, so that it cannot stand. As Hübner did not indicate a special name for the Phycids in general, it is right that we should adopt that of *Phycita* imposed by Curtis, and, consequently, I propose calling the family "PHYCITIDÆ."

As the name *Phycita* was evidently given to replace that of the Fabrician genus *Phycis*, the type of the genus *Phycita*, Curtis, would be *spissicella*, F. (*roborella*, S.V.).

Having, I hope, sufficiently justified the modification in the name of the family, I will now consider the genera and species, following the classification given in the "Manual," marking with an * the species discovered in England since the publication of Mr. Stainton's work.

GALLERIDÆ.

Galleria mellonella, L.—This insect and its larva are very well known.

Aphomia sociella, L.—Linnæus described the ♂ first under the name of *sociella*, and afterwards the ♀ under that of *colonella*. The larva does not appear to have been described anew since Treitschke.

Curtis placed the sexes of *sociella* in two different genera, *Melia*, Curtis, and *Ilythia*, Latreille, but neither can be retained, because *Aphomia*, Hüb., had been applied to the genus long previously.

Some confusion has arisen with regard to the genus *Ilithyia*, as the author employed the name for two different genera. Latreille first created the genus *Ilithyia* in 1825 for *Crambus colonum* in his "Familles Naturelles du Règne Animal," but he did not characterize it.

Duponchel, in the "Dictionnaire universel d'Histoire Naturelle" (d'Orbigny), confounded *colonum* with *carnella*, L., for if we refer to Latreille's "Genera Crustaceorum et Insectorum," &c., 1809, vol. iv, p. 231, we find that *Crambus colonum* is synonymous with *Tinea colonella*, L., Fab., Hüb., *Tinea colonum*, Fab., *sociella*, L.

In the edition of 1817 of Cuvier's "Règne Animal," Latreille leaves *colonella* among the *Galleriæ*, and says that "*Crambus carneus* and several other species" (which he does not state) should form a sub-genus of *Crambus*.

In the edition of 1829 of the same work he mentions the genus *Ilithyia*, Latr. (*Crambus*, F.), comprising *Crambus carneus* and several other species having knotted antennæ, but again omits to say *which* species should be placed in the genus.

Ilithyia, Latr., being synonymous with *Aphomia* as regards *colonella*, L., and not having been applied regularly to *carnella*, L. (which belongs to the genus *Salebria*, as already explained), should not be retained as a genus.

Melissoblaptes bipunctanus, Curt.—This insect has been confused to a great extent with *anellus*, S.V., on account of the similarity in colour; it has, however, narrower fore-wings, the costa much less rounded; the wings bear a more uniform colour, *anellus* being more varied and mottled; the safest way to distinguish the two insects is by the neuration. Zeller founded his genus *Melissoblaptes* on *bipunctanus*, for that species has only seven veins to the hind-wings, whilst *anellus* has eight; besides, in the fore-wings of *bipunctanus* vein 9 arises from the common stem of 7 and 8, which are forked, whilst in *anellus* vein 7 originates from the common stem of 8 and 9. As the neuration of both sexes is identical in each species, I consider that *anellus* is generically distinct from *bipunctanus*, and propose for the former the generic appellation of *Hornigia*, in honour of my friend Mr. J. von Hornig of Vienna, a distinguished Entomologist.

The larva of *bipunctanus* has not been satisfactorily identified, as no doubt it has always been confounded with that of *anellus*.

We are still in the dark respecting the habits of the larva of even the latter species; Zincken supposed that it lived in nests of humble-bees, but could not verify the fact. Zeller, in the "Stettiner ent. Zeitung" for 1868, p. 413, wrote that he had discovered, in the month of July, numbers of tubular galleries placed perpendicularly in the soil of a sandy locality, or horizontally on the surface of the ground, which was sparingly covered with patches of *Hieracium pilosella*, *Trifolium repens*, and various grasses. Some of these galleries were tenanted by larvæ, others by pupæ, but he could not discover the food-plant of the larva. He tried the latter with dead flies, and thought that the bodies of some had been nibbled; he also noticed that a larva had devoured one of the pupæ, but he did not feel justified in affirming that the larva at large would live on animal food, and remarked that the silken tubes had no vestiges of insects mixed with them. Zeller bred several of the insects, and although he called them *bipunctanus*, he thought they might have been considered as *anellus*, and that perhaps it was a mistake to consider the latter distinct from *bipunctanus*.

Büttner confirms Zeller's observations, and states that he bred large specimens of *bipunctanus* from larvæ fed on dead insects.

J. von Hornig submitted to me a number of *anellus*, S.V., bred from wasps' nests (*Vespa sylvestris* and *Polistes gallica*), and mentioned that the species was usually bred from these nests in Vienna.

On the other hand, M. Millière states that he has bred *anellus* from larvæ fed on the flowers of *Inula helenium*. M. Chretien, of Boulogne, informs me that he had received in the summer ova of *anellus* from M. Millière, and had reared the larvæ on flowers of various plants; he obtained several large specimens of the imago in the autumn. I also received two batches of eggs from M. Millière, and thinking that the larvæ might feed on sweet substances in the nests of wasps, I gave them some dried figs, but they did not thrive and produce the perfect insect; they are still small, and no doubt I shall not breed the moth before next summer. Mr. Barrett informs me that Mr. Sydney Webb finds *bipunctanus* in England sitting on swampy ground more frequently than elsewhere.

Achrœa griseella, F.—The larva was figured by Réaumur, and has frequently been described since. It feeds in bee-hives, and is often injurious. M. Lhotte of Rouen, however, has bred the insect from dried apples, so that it does not affect bee-hives only.

**Melissoblaptes cephalonica*, Stt.—As Mr. Stainton rightly surmised, *cephalonica* is certainly not a true *Melissoblaptes*, Z., for the shape of the wings and the neuration are different. In *Melissoblaptes*, Z., four veins originate from the median nervure, vein 2 from near the middle of the median nervure, 3 from near the angle of the cell, and 4 and 5, on a common stem, arise from the angle of the cell. In *cephalonica*, on the contrary, vein 2 is wanting, 3 arises much before the angle of the cell, 3 and 4 originating separately from the angle of the cell. In the hind-wings we find seven veins, as in *bipunctanus*, but veins 4 and 5 are very short. The basal joint of the antennæ in both sexes of *cephalonica* is densely covered with hair-like scales, whilst in *bipunctanus* it is naked. In the latter species the palpi of the ♀ are porrect and very long; in *cephalonica*, on the contrary, they are short, rounded and drooping. The larva feeds on dried currants, and has no doubt been introduced into England.

To recall the country whence it has most likely been imported, I name the new genus *Corcyra* (ancient name of Corfu).

PHYCITIDÆ.

Anerastia, Hb. — The essential character of *Anerastia* is the absence, or nearly so, of the tongue. The *Anerastiæ* differ so much from the rest of the *Phycitidæ* in this respect, that I have been induced to separate them thus, forming two sub-families:—

1° PHYCITINÆ.

2° ANERASTINÆ.

The *Anerastinæ*, represented in England by a single species, are very numerous out of Europe.

The larva of *Anerastia lotella*, Hb., is well known, having been described by Zeller in 1848, and by Mr. Buckler in 1875.

Anerastia Farrella, Curt.—The name of *Farrella* must be dropped and replaced by that of *Boisduvaliella*, under which name it was very recognisably described in 1845 by Guenée in his "Index Microlepidopterorum," p. 81. His description runs as follows:—

"Affinis videtur colore *divisellæ*; at alia. Alæ anticæ angustæ, cervinæ, vitta costali albocinerea, marginibus interno terminalique cinereo adspersis, puncto minimo cellulari nigro, fimbria concolore, trilineata, alæ posticæ albido-subhyalinæ. Antennæ minime nodosæ. Palpi capite duplo longiores, conici, basi adscendentes, denique porrecti. Ex Helvetia accepta ab amicissimo Boisduval cujus nomine gaudet."

Guenée places the insect in the genus *Epischnia*, Hb., to which it certainly belongs. I have seen the type in his collection at Rennes. It would appear that *Farrella* is rare in collections in England, and that it is replaced by varieties of *lotella*, which may account for its having been placed in the genus *Anerastia*.

Ephestia, Z., *elutella*, Hb.—The larva is well known, and the insect very widely distributed.

Ephestia semirufa, Hw.—All the specimens I have seen are in rather poor condition. *Semirufa* can be distinguished from *elutella* by its larger size, its brownish-ochreous colour, the narrowness of the median space. In the ♂ the tuft of scales below the fore-wings on the costa at the base is very small and indistinct; in the two specimens before me I cannot find any trace of the yellow hairs on the hind-wings at the base, as mentioned by Mr. Barrett, nor the yellowish patch at the base of the fore-wings above on the inner margin, all so conspicuous in *elutella*, and other *Ephestiæ*.

The larva has not yet been discovered, nor does the insect appear to have been found out of England.

Ephestia ficella, Dgl.—This insect is widely distributed, and has received several names. It was first described by Guenée (*l. c.*, p. 82) under the name of *calidella*, afterwards by Mr. Douglas under the name of *ficella*, and by Dr. Staudinger as *Ephestia xanthotricha*; it has wrongly been placed in the genus *Myelois* by Dr. Wocke, as it is a true *Ephestia*.

Guenée described the insect as follows:—

> "Statura *ceratoniellæ*, cui affinis, at alia videtur, alæ anticæ cinereæ, atomis nigris conspersæ, strigis duabus albidioribus vix conspicuis, media bi-angulata, non vero obliqua, atomis densioribus nigris extus adumbrata, ante-terminali undata, nigro angustius marginata; puncto medio nigro vix ab atomis distincto, punctulis marginalibus aliquot nigris, fimbria cinerea. Alæ posticæ albidæ, sub-hyalinæ, lineola gemina terminali fusca. Palpi capite longiores, graciles, protensi, articulo tertio secundum æquante, cylindrico-obtuso. Antennæ omnino filiformes, articulo basali vix incrassato. D. Donzel cepit in insul. Hyères."

I have seen the types in Guenée's collection now at Rennes. The larva is well known.

**Ephestia passulella*, Barrett.—This insect occurs nearly all over the world; I have it from England, Cannes, Vienna, Egypt, Siberia, Japan, and Chili. It was first described by Zeller in the "Stettiner ent. Zeitung" of 1867, p. 384, as *Ephestia cahiritella*. I have seen the original types. The larva has been described by Mr. Buckler, Ent. Mo. Mag., vol. xix, p. 104. I received ova of this species from M. Millière, and reared the larvæ, the moth coming out at the end of October; but, as in other species of *Ephestia*, a part of the larvæ hibernate and change to pupæ towards the end of May, the imago appearing at the beginning of June.

**Ephestia figulilella*, Gregson.—I am informed by my friend Mr. Gregson that the name was mis-spelt as it was being printed, and he had no opportunity of correcting it. This being so, and as it was intended to recall the food of the larva, we may adopt that of *ficulella*, proposed by Mr. Barrett. The larva has been described by Mr. Porritt in the Ent. Mo. Mag., vol. xvii, p. 14.

Ephestia interpunctella, Hb.—The larva of this species has frequently been described; it appears to be injurious to Indian corn in the United States, where the moth is known under the name of *E. zeæ*, Fitch.

The palpi of *interpunctella* being porrect instead of ascending, I consider it right to retain for the insect the generic appellation of *Plodia*, Guenée (Index Micro., p. 80).

**Ephestia Roxburghii*, Gregson.—This appears to be a good species, and should be placed near to *elutella*; it has considerable resemblance to *Cryptoblabes bistriga*, and might be confounded with it, but, besides the difference in the colour, the neuration is very distinct.

As the insect is so little known, I append a description of it:—

Al. ex., 20 mm. Fore-wings broad, costa rounded, colour pale brownish-grey, median space entirely suffused with blackish-brown, in which the discal spots are hardly perceptible. First line oblique, greyish, hardly paler than the ground colour. Second line slender, pale grey, parallel to the hind margin, slightly sinuous, followed on the costa by a dark streak. Cilia pale brownish-grey, preceded by an indistinct dark line. Hind-wings brownish-grey, cilia paler. Head, thorax and palpi brownish-grey; antennæ pale brown, not annulated. Palpi recurved, ascending.

The specimen (a ♀) from which I have drawn up the above description is the original type of *Roxburghii*, Greg., kindly submitted to me by him. The specimen is not in a good state, but it differs from every other species of *Ephestia* with which I am acquainted. It belongs to the puzzling group of which *elutella* and *semirufa* are the types, the discal cell of the hind-wings being comparatively long, and veins 3 and 5 (4 wanting) appearing somewhat stalked. It very much resembles *tenebrosa*, Z., but in the latter species, which differs from the true *Ephestiæ* because vein 8 is present on the fore-wings, the upper wings are entirely blackish, except the base and inner margin, and the hind-wings are nearly white.

Dr. Staudinger has sent me a species from Zaragoza (Spain), which is very close to *Roxburghii*, but the wings are entirely blackish with a rust-coloured streak along the inner margin, and the lines distinctly whitish. *Roxburghii* has not yet been bred.

Homœosoma, Curt.—In the Isis of 1839 Zeller proposed for this genus the name of *Phycidea*, but in the Isis of 1848 he adopted that of *Homœosoma* of Curtis, this name having priority.

Homœosoma nebulella, S.V.—The larva has been described as feeding in the heads of thistles. Wood figures a *binævella* (fig. 1451) instead of a *nebulella.*

Homœosoma nimbella, Z.—The larva is well known, and feeds in the heads of a great number of composite plants. The insect varies very much in size and markings.

**Homœosoma saxicola*, Vaugh.—This appears to be the most frequent form of *nimbella* in England. I have a number of British *nimbella* from Yarmouth, Yorkshire, Cheshire, Pembroke, and Dublin, and none are like continental specimens of that species; *saxicola* is generally larger, the fore-wings are more distinctly white on the costa, and the rest of the wing is of a pure ochre, not at all powdered with black scales as in the type of *nimbella.* The name of *saxicola* should be retained to distinguish the English variety of *nimbella.*

**Homœosoma senecionis*, Vaugh.—This is a distinct species, but it had already been described by Dr. Rössler in 1866 as *H. cretacella.* The larva has been described by Mr. Buckler (Ent. Mo. Mag., vol. vii, p. 131). It feeds in a tubular gallery among the flowers of *Senecio jacobæa.* I have seen Dr. Rössler's original types from Wiesbaden, and specimens from Metz and Siberia.

Homœosoma binævella, Hb.—The larva feeds in the heads of thistles, and has been described by J. von Hornig in 1853, and Barrett (Ent. Mo. Mag., vol. xv, p. 181).

Homœosoma sinuella, Fab.—The larva feeds in the root stalks of *Plantago lanceolata*, and its life history has been given in this Magazine, vol. xv, p. 180, by Mr. Barrett. The perfect insect varies somewhat in the neuration.

Acrobasis consociella, Hb.—The larva lives in long, narrow, tubular, silken galleries (covered with its excrements) between voluminous bundles of oak leaves drawn together, and has frequently been described.

**Acrobasis sodalella*, Z.—Mr. Barrett notices this species in the Ent. Mo. Mag., vol. xix, p. 111, and concurs in the opinion of Zeller that *sodalella* is only a variety of *consociella.* I am not sure he is right, for besides the differences which Mr. Barrett finds in the perfect insect, there is a considerable dissimilarity in the larvæ. That of *sodalella* is olivaceous greyish-brown, with six longitudinal interrupted whitish lines; head yellowish, covered with numerous irregular black lines and bordered with blackish. Second segment with a shining black plate, divided in the middle by a pale line and twice notched in front, a small black spot on each side beneath. Third segment with a small black raised spot. The ordinary spots are very small, black, surrounded with white; a small blackish plate on the anal segment. Fore-legs black. This description is taken from a well-preserved larva submitted to me by Herr Eppelsheim with one of *consociella.* The ground colour of the latter is very pale greenish-grey, with five longitudinal dark lines, the feet concolorous; second segment with an indistinct concolorous plate, spotted with black; the head entirely yellowish. Until we can obtain more positive information about *sodalella,* Z., I must consider it distinct from *consociella,* Hb.

Acrobasis tumidella, Zk., and *rubrotibiella,* F. v. R.—The synonymy of these two species is very perplexing.

In the Wiener Verzeichniss we find, page 130:—" 19. Lichtgrauer W. (Wickler) mit zwei röthlichen Schwulsten. *T. Tumidana.*"

Hübner figured under the name of *verrucella* (fig. 73) an insect which has certainly more the appearance of *tumidella,* Zk., than of *rubrotibiella,* but in his "Text," page 35, describing the insect under the name of "Warzentragende Schabe; *Tin. verrucella,*" he says most distinctly that the first line has a reddish wart-like elevation, "die innere (Streif) welcher den ockergelben Raum schliesst, ist schwarz, hat an sich röthliche warzenförmige Erhöhungen." . . .

When figuring and describing the insect, he was under the impression that it was the *verrucella* of the Vienna Catalogue, but having learnt that the latter was not the Phycid, and that his *verrucella* was the *tumidana,* S.V., in his Catalogue he changed the name of *tumidana* into *tumidalis,* quoting his *verrucella* as a synonym.

Zincken, who wrote two years later, was not certain that the species he described under the name of *tumidella* was the *tumidana* of the Vienna Catalogue, though he quotes Hübner's *verrucella* as a synonym; he imposed the name of *tumidella* not for the sake of the termination in "*ella,*" but as a "new name to prevent confusion with *tumidana,* S.V.;" and as he does not speak of the warty band on the the first line, his insect is clearly different from that of the Vienna Catalogue, as well as from Hübner's *verrucella.*

Treitschke describes *tumidella,* Zk., following Zincken for the synonymy and description of the larva, so that, as he does not mention the raised scales, the description can only apply to *tumidella,* Zk.

Lastly, Fischer von Röslerstamm, who discovered that there were two closely allied species, and after declaring that in Schiffermüller's Collection in Vienna, under the name of *tumidana*, S.V., there were two good specimens of a species which agrees well with the description in the Catalogue, instead of calling *this* species *tumidana*, S.V., he gives it a new name—*rubrotibiella.* As he says that *verrucella*, Hb., is *tumidella*, Zk. and Treitschke, it proves that he had not read Hübner's description, and only considered the figure which, it is true, more resembles *tumidella*, Zk., than *rubrotibiella*, F. R., but the latter species varies very much, and I have specimens which agree very well with fig. 73 of Hübner.

Zeller was also of opinion that *tumidana*, S.V., is *rubrotibiella*, F. R.; it is, therefore, strange that both he and Fischer von Röslerstamm should have retained the name of *rubrotibiella* under the circumstances.

As we must restore the name of *tumidana*, S.V., since it is certainly Hübner's *verrucella* and *rubrotibiella*, F. R., we cannot retain Zincken's *tumidella*, which would naturally produce confusion; in consequence I propose to name the latter *Zelleri*, in honour of the great Lepidopterist who worked out the *Phycitidæ* in so masterly a manner.

The larvæ of *tumidana*, S.V., and *Zelleri*, Rag., are very similar, and may be described as follows:—

Greenish-yellow, with a purple tint, more intense on the dorsal region than on the sides, body beneath paler; the five dorsal stripes blackish-brown; ordinary spots black, indistinct. Head pale yellow, marbled and spotted with black, mouth brownish. Second segment also pale yellow, with the plate above spotted with black, the dorsal line visible beneath.

Tumidana, S.V., has the markings very distinct, dark, and the larva has frequently a strong reddish tinge.

In *Zelleri*, Rag., on the contrary, the ground colour is yellower and greener, the longitudinal lines are also nearly obliterated anteriorly.

Acrobasis angustella, Hb.—Zeller, in the Isis of 1848, created the genus *Alispa* for this species, which agrees with no other Phycid either in the structure of the perfect insect, or in the habits of the larva. Hübner, thinking that the name *angustella* might lead to confusion with *angustalis*, S.V., changed it in his Catalogue into *gracilalis*, which, however, has never been employed, as *angustalis*, S.V., is a Pyralid. The larva feeds in the berries of *Euonymus europæus*, and is well known.

Cryptoblabes bistriga, Hw.—The larva of this species has been described by J. von Hornig and Anton Gartner as feeding on *Alnus glutinosa*, but Buckler described it as feeding on oak.

M. Millière has re-described *bistriga* under the name of *Ephestia lugdunella.*

Nyctegretis achatinella, Hb.—The larva was discovered by Herr Sorhagen, who describes it in the Berliner ent. Zeitung, vol. xxvi, p. 156. It feeds on *Sedum sexangulare*, forming a thick white gallery which extends from the lower part of the flowering stems to the roots; is full-fed towards the middle of June.

Myelois cribrum, S.V.—This common species has borne several names, and that of *cribrum* is wrongly applied, for in the Catalogue of Schiffermüller and Denis the insect bearing that name is placed among the "*Noctuæ*," between *Setina roscida* and *Deiopeia pulchella*, proving that the authors had only in mind *Emydia cribrum*, Lin., and not a Phycid (or *Tinea*, according to the early writers). Thus we find in the Vienna Catalogue, page 68:—"8. Weisse schwarzpunktirte Eule, *N. cribrum*, Linn.;" the quotation of the Linnæan name and the place assigned to the insect showing that the authors intended the well-known *Bombyx*, and not a new species, so that even if in the collection there were specimens of the Phycid the name could not stand. The species was afterwards figured and described by Hübner, in his Beyträge, vol. i (pl. 3, fig. ss. 24), under the name of *Tinea cribrumella*, but as this is evidently the same as *cribrum*, with the ending of "*ella*," I consider it must be put aside for the same reason.

The insect was next published and described as *Tinea cribrella* by Hübner, fig. 67, page 36, and this name should be retained; subsequently, in his Catalogue, Hübner changed the name to *medullalis*, in order to avoid confusion with *Emydia cribrum*, but this alteration was not needed. The larva feeds in the heads of thistles, and hibernates in the dried stems, but sometimes (in the south of France), it changes to a pupa in July, and the moth appears towards the end of the same month and beginning of August. Treitschke originated the error in the life-history of the insect that the ova are deposited on the stems, and that the larvæ feed only in the interior of the latter.

Myelois suavella, Zk.—The larva is well-known, feeding on sloe and hawthorn.

Myelois advenella, Zk.—The larva, feeding on hawthorn and *Sorbus aucuparia*, has been described several times.

Myelois marmorea, Hw.—This is called *epelydella*, Z., in continental collections, but as it appears that the insect had been described under the name of *marmorea* by Haworth long before Zeller published it under that of *epelydella*, the latter name cannot be retained. The larva feeds on sloe and hawthorn; it has been described by Mr. Buckler.

Myelois ceratoniæ, Z.—This insect is a true *Myelois*. It has been re-described by Vaughan as *Trachonitis Pryerella*. Thanks to the kindness of Mr. Stainton, I have had an opportunity of seeing one of the original types, which I find is only a bleached example of *ceratoniæ*, Z. This type is quite abnormal in structure, for it has nine veins to the hind-wings, the sub-costal vein throwing out two branches to the costa.

Ceratoniæ has lately been described by Sorhagen in the Berliner ent. Zeit., xxvi, p. 154, as *Euzophera Zellerella*, but having seen the original and unique type which exists in the Berlin Zoological Museum, I find it is also a light-coloured mottled specimen of *ceratoniæ*; the hind-wings have eight veins, so that it is surely not a *Euzophera*, but a *Myelois*. The insect has also been distributed in a few collections under the name of *Ragonoti* by my friend Baron von Nolcken, but happily the publication has been arrested in time.

The larva has frequently been described; it feeds on dried fruit, such as *Ceratonia siliqua*, dates, *Pyrus japonica*, &c. I have bred it from a larva found feeding in a blood-orange in January.

**Myelois cirrigerella*, Zk.—The larva of this species is still unknown.

Myelois pinguis, Hw.—The larva was discovered by Mr. Helstrip, of York, and it has been described by Mr. Buckler; it feeds under the bark of ash trees. This species and the following are not true *Myelois*, the hind-wings bearing only seven veins; they belong to the genus *Euzophera*, Z.

Myelois artemisiella, Stt.—*Artemisiella* had already been described in 1839 by Zeller, under the name of *cinerosella*, and afterwards by Eversmann under that of *incanella*. The larva has been published several times; it feeds in the roots of *Artemisia absynthium* and *A. campestris*.

Euzophera oblitella, Z.—Von Heinemann places this insect in his genus *Stenoptycha*,† but the neuration is very different from that of true *Euzopheræ*, such as *cinerosella*, Z., *pinguis*, Hw., &c., and resembles very much that of *Ancylosis*, so that as I find a good number of species hitherto mixed up in the genera *Myelois*, *Euzophera*, *Acrobasis*, *Nyctegretis*, and *Ancylosis*, such as *sabulosella*, Stgr., *terstrigella*, Chr., *rhodochrella*, H.-S., *pyrethrella*, H.-S., *candidatella*, Ld., *ochracea*, Stgr., *samaritanella*, Z., among which I include *oblitella*, Z., provisionally, all agreeing with each other in neuration, form of palpi, and antennæ. I place them in a special genus to be called *Heterographis*. *Oblitella* differs somewhat from the other species. As in the species of the genus *Ancylosis*, *Heterographis* can easily be recognised by the position of veins 4 and 5 of the fore-wings, these veins originating from nearly the angle of the cell, so that they are *in a line* with *the median nervure*. The hind-wings have only seven veins, vein 2 arising from just before the angle of the cell, whilst 3 and 5 (4 wanting) are on a long stem. The antennæ are generally simple, sometimes sinuous near the base, pubescent, rarely ciliated. The labial palpi ascending, more or less curved; the maxillary palpi filiform, very small, indistinct.

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† Finding that the name was already used for a genus of *Lepidoptera*, von Heinemann afterwards changed the name into *Melia*, but this also being employed, Zeller proposed instead that of *Euzophera*.

Oblitella, Z., has a very wide range; it occurs in southern Europe, Germany, Hungary, southern Russia, Asia (Kouldja), and it is also common in North America, where it has been described by Clemens as *Nephopteryx undulatella*. Walker has also described it as *Neph. propriella*.

A specimen from the Isle of Wight is recorded in Ent. Mo. Mag., xv, p. 187.

It is a very variable insect, generally pale grey, but sometimes so suffused with fuscous scales, especially the female, that the wings become of quite a uniform blackish-brown colour. The hind-wings of the American specimens are somewhat darker, and the dark spot before the first line on the inner margin is extended into a broad dark band.

Oblitella, Z., does not seem to be well known, it is mixed with allied species, and even Zeller was not well acquainted with the insect, for he sent me under the name of *oblitella*, several *Ancylosis neglectella*, Hein., which is a very different species, easily distinguished by the neuration, veins 4 and 5 of the fore-wings arising from a common point, or very shortly stemmed, whilst in *oblitella* the stem is very long; moreover, *neglectella* and *ephedrella*, H.-S., are of a yellowish-brown colour, and the lines are not so white and distinct as in *oblitella*.

The larva of *oblitella*, Z., is unknown; but Clemens found a number of larvæ which were ascending a trunk of elm to undergo pupation, and describes one of them as well as the cocoon, ascribing them to his *Neph. undulatella*, but he did not succeed in rearing them to the perfect state.

Hypochalcia ahenella, S.V.—The larva is still unknown. As Dr. Rössler states that it forms tubular galleries on the lower leaves of *Helianthemum vulgare*, according to Anton Schmid, I wrote to the latter, who informed me that the larva mentioned above as feeding on *Helianthemum* was that of *Brephia compositella*, and not that of *ahenella*, with which he was unacquainted.

The species is indicated in the Vienna Catalogue simply by the words:—" 32. Glänzender schwarzgrauer Schabe. *T. ahenella*," which diagnosis might suit many other *Phycitidæ*, and, unfortunately, when Zincken wrote his monograph of the genus *Phycis*, no specimens existed in the collection of Schiffermüller and Denis. Fischer v. Röslerstamm, it is true, stated that he had seen under the name of *æneella* in the Vienna collection a good male specimen of *ahenella*; von Charpentier and Treitschke did not find it when they examined the collection, so that the species stands not so much on the original description as on those of all subsequent authors who have seen in what we now call *ahenella* the true *ahenella*, S.V.

Hübner's fig. 41 is not very bad, but his fig. 58 seems to represent a large *melanella*. It appears that *obscuratus*, Hw., and *tetrix*, Hw., are referable to *ahenella*, and so are *bistrigella*, Dup., and *fuliginella*, Dup., the latter being *var. b.* of Zeller.

Gymnancycla canella, S.V.—Simply described in the Vienna Catalogue, p. 135, as:—" 31. Grauröthlicher Schabe ohne Ringe. *T. canella*." Fischer v. Röslerstamm saw a type in the Vienna collection. Zincken was not acquainted with *canella*, which he describes from Hübner's fig. 289 under the name of *depositella*.

The larva has been described by von Hornig and others feeding on *Salsola Kali*, *Atriplex hortensis*, and *Salicornia herbacea*. Millière, in his Iconographie, vol. iii, page 158, describes *canella* as *Ancylosis cinnamomella*, Dup., but on plate 115, fig. 15 to 19, he has *Epischnia* (?) *cinerella*, Dup., and he corrects these mistakes, page 171, saying that the description applies to *Gymnancycla cinerella*, Dup., quoting *cinerella*, Dup., because it is given as a synonym by Wocke; but *cinerella*, Dup., is quite a different insect belonging to the genus *Bradyrrhoa*, of Zeller.

(*To be continued*).

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from Vol.* xxi, *p.* 267).

B. Thorax and elytra with fine but very distinct cross reticulation between punctures; anterior margin of forehead emarginate.

M. rotundicollis, Bris.—Short oval, rather convex, leaden-black; thorax about half as broad again as long, broadest about the middle; antennæ light; legs reddish-yellow; punctuation very close; anterior tibiæ finely denticulate. Very closely resembling *M. picipes* at first sight, and often confounded with that species; it is, however, readily distinguished from it by the rounder and somewhat dilated sides of thorax, emarginate forehead, closer punctuation, and also by the plain cross reticulation between the punctures of the thorax and elytra, and the finer denticulation of the anterior tibiæ. Length, ⅚ lin.

On *Genistæ* and *Trifolium medium*; rare; Littlington, Horsell, Mickleham, Caterham, Highgate, Brighton.

C. Thorax quite smooth between punctures; elytra with fine though distinct cross reticulation; body with strong purple-metallic reflection; anterior margin of forehead straight.

M. symphyti, Heer.—Oval, convex, short in comparison with its breadth; colour violet or greenish-blue; body smooth and shining; legs yellowish; antennæ light, except club, which is somewhat darker; elytra rather strongly and somewhat diffusely punctured, with plain cross reticulation between punctures; thorax more strongly and closely punctured, with interstices quite smooth; anterior tibiæ finely, sharply, and evenly toothed. Male with a deep longitudinal impression on the hinder half of the metasternum, with a tubercle on each side and a smaller one in the middle of the posterior margin. Length, 1⅛ lin.

Rare; on *Symphytum officinale*, but by no means confined to this plant; in fact, more of our English specimens have been taken on *Agraphis nutans*, and it has occurred on *Taraxacum*. Henley, Dr. Power; Shiere, Dr. Capron; on *Galeobdolon luteum*, near Bowdon, Manchester, Mr. Chappell; Caterham, Mickleham, Amberley, St. Mary Cray, Mr. Champion and Mr. J. J. Walker; Studley Royal, Ripon, Mr. Waterhouse.

iv. Anterior tibiæ strongly serrate or pectinate for at least two-thirds from apex; teeth often irregular, but always distinct and more or less strong.

A. Upper surface very scantily pubescent, entirely smooth between punctures; legs lighter or darker brown; anterior tibiæ serrate.

a. Anterior tibiæ dilated from above middle; thorax nearly as long as broad.

M. nanus, Er. (*marrubii*, Bris.).—Oblong ovate, not very convex, deep black, shining, with scanty pubescence; thorax not much broader than long; punctuation rather strong, especially of elytra; antennæ and legs varying in colour from dark brown to yellow; anterior tibiæ strongly dilated for at least two-thirds from apex, and with strong irregular teeth, of which four or five at base, apex, and in the middle, are especially conspicuous. Length, ¾—1 line.

On *Marrubium vulgare*, *Erysimum alliaria*, and *Salix aurita*; very rare in Britain. Mr. Rye took a specimen at Putney with dark legs and antennæ, and Dr. Power another at Horsell with yellow antennæ and light legs; it has also occurred at Mickleham. This species is closely allied to *M. serripes*, but may be distinguished from it by its much longer thorax, stronger and less close punctuation, and the stronger and more irregular denticulation of the anterior tibiæ, which are more dilated than in *M. serripes.*

b. Anterior tibiæ not dilated from above middle; thorax short, much broader than long.

M. serripes, Gyll.—Oblong oval, rather flat, shining black, occasionally with a leaden reflection, which is chiefly seen in fresh specimens, and is caused by the fine ashy-grey pubescence with which the insect is clothed; antennæ and legs pitchy or reddish-brown; thorax transverse, sinuate at base; punctuation distinct, about the same on thorax and elytra; anterior tibiæ armed with a row of short, strong, usually regular, sharp teeth from a little below base to apex; metasternum of male with a distinct channel behind. Length, ⅔—⅞ lin.

Rather rare; Shiere, Mickleham, Hampstead, Caterham, Chaldon (Surrey), Eastbourne, &c. On *Salvia pratensis* and *Saponaria officinalis*, &c.

Although, as a rule, the teeth on the anterior tibiæ of *M. serripes* are variable in number, they are usually regular as regards length and breadth in individual specimens, some having them broader and blunter, some narrower and sharper; occasionally, however, the same individual has the right and left tibiæ differently toothed; in the late Mr. Rye's collection one specimen has six or seven regular fine teeth on one side and three or four strong blunt ones on the other: this is not unusual, and may be noticed in examples of *M. picipes*, *ovatus*, &c. *M. serripes* is rather a variable species, and may sometimes be confused with small rubbed *M. flavipes* or *M. picipes*; from both, however, it may be distinguished by its narrower form, and the invariably stronger denticulation of its anterior tibiæ.

B. Upper surface very thickly pubescent, thorax and elytra smooth between punctures, scutellum only with strong cross striation; legs black; anterior tibiæ more or less pectinate.

M. murinus, Er. (*seniculus*, ♀, Er.).—Oblong, not very convex, black, clothed with thick greyish or whitish pubescence; thorax one-third broader than long;

punctuation close and fine; legs black, with tarsi somewhat lighter; antennæ black, with the second joint and sometimes the next one or two reddish; anterior tibiæ armed with a row of regular comblike teeth from a little below base to apex; male with the last abdominal segment furnished with a very small and narrow triangular indentation. Length, ⅝—1⅛ lin.

Common on the coast on *Echium vulgare.* Dr. Capron tells me that he has taken it on a small composite plant at Eastbourne; it also occurs inland at Caterham, Mickleham, &c.

M. seniculus, Er., is a variety of this species, according to Brisout; according to Reitter it is the female.

var. planiusculus, Er.—This variety of *M. murinus*, which is considered a separate species by Erichson, is characterized by having the anterior tibiæ more regularly and less sharply toothed, and the entire base of the antennæ red; some of the teeth in *M. seniculus* almost invariably point downwards towards apex, while in *M. planiusculus* they stand out at right angles to the tibiæ, and are smaller and blunter; the colour of the base of the antennæ is not a very reliable character.

There is a specimen in Dr. Power's collection taken at Birch Wood in 1865, that agrees well with types of this species sent me by Herr Reitter.

There can be no doubt that this species of Erichson's must be regarded as a variety of *M. murinus*; in almost all points they are exactly similar; as regards the denticulation of the anterior tibiæ, individual specimens of *M. murinus* differ very much, and, as in *M. serripes*, &c., the teeth occasionally vary on the different tibiæ of the same specimens, being sometimes very strong on one side and almost obsolete on the other; the same peculiarity may be noticed in the *Saprini*, and is probably often the result of accident, or wear and tear, rather than a structural difference.

v. Anterior tibiæ very finely toothed, but with two or three distinct, though small, outstanding teeth, situated at some distance from one another, and separated by two or more smaller teeth.

A. Upper surface shining black, with slight traces of cross striation between punctures; anterior tibiæ with two outstanding teeth; legs black, anterior tibiæ pitchy.

M. lugubris, Sturm.—Oval, rather convex, deep shining black, closely and finely punctured; punctuation on elytra somewhat plainer; pubescence scanty, greyish; thorax about one-third broader than long, somewhat contracted in front; interstices with slight traces of cross striation, which are plainer on the sides of the thorax; anterior tibiæ with two short outstanding teeth, separated by two or more small teeth; forehead excised with a small sharp projection in the centre of the emargination; metasternum of male depressed behind with a strong longitudinal cariniform projection on the front of the depression; last abdominal segment of male with a little raised keel before its extremity, and behind this a smooth depressed surface; anterior tarsi of male strongly dilated.

There is a smaller variety of this species which, according to M. Brisout, has less strong and deep punctuation; the keel on the last abdominal segment of the male is often deeply divided so as to present the appearance of two sharp tubercles placed side by side. Length, ⅝—1 lin.

var. gagathinus, Er.—This species of Erichson's is evidently nothing more than a variety of *M. lugubris*; it is larger and more convex, with darker pubescence, and finer denticulation on the anterior tibiæ, but it presents no really satisfactory points of distinction. Length, 1¼ line.

By general sweeping. Buckland Hill (Reigate), Esher, Bearstead, Shirley, Mickleham, Caterham, Amberley, Kingsdown, &c. It is a very local species. According to M. Brisout it occurs on species of *Mentha*.

B. Upper surface dull black, with plain cross reticulation; anterior tibiæ with two outstanding teeth; legs dark, anterior pair dark red.

a. Forehead straight; anterior tarsi of male very strongly dilated.

M. obscurus, Er. (*palmatus*, Er., ♂).—Rather broader and more oblong than *M. erythropus*, which it much resembles; dull, leaden, with distinct cross reticulation between punctures; punctuation thick and close; pubescence thick, greyish or brownish; thorax one-third broader than long; antennæ black, with the first or the first two joints brown-red; anterior tibiæ armed with two short prominent teeth, separated by two or more smaller teeth. The male has the anterior tarsi extraordinarily developed, and often lighter in colour; it is the *M. palmatus* of Erichson, and for a long time stood under that name in British collections. Length, ¾—⅞ lin.

Local; on *Mentha aquatica*, *Cynoglossum officinale*, and *Helianthemum vulgare*; Esher, Mickleham, Darenth, Amberley, Seven Oaks, Southsea; Bearstead (Kent) on *Teucrium scorodonia*, Mr. Gorham; Llangollen, on *Linaria vulgaris*, Mr. Chappell.

The *M. distinctus* of Waterhouse's catalogue must be referred to this species; the true *M. distinctus*, Sturm., is not a British species; for some reason M. Brisout omits it altogether from his Synopsis: it would appear, however, to be readily separable from *M. obscurus* (according to Herr Reitter, who places it in a group by itself), by having the interstices smooth and the anterior margin of the forehead emarginate: as regards shape, colour and denticulation of anterior tibiæ, it is closely allied to our species, and hence probably arose the mistake.

(To be continued).

THE EUROPEAN SPECIES OF THE GENUS *CLINOCORIS*, HAHN, STÅL.

BY PROF. O. M. REUTER.

In the Ent. Mo. Mag., xxi, p. 276, Mr. Douglas has a note concerning *Clinocoris griseus* and *interstinctus*, in which the short report in the "Wiener ent. Zeitung" is accounted to be my exposition of the synonymy of these species in the "Revue mensuelle d'Entomol." Mr. Douglas, however, leaves it to be inferred that he is not aware of any structural differences between the two species, and says, he does not know how I have arrived at my conclusion of the reality of Linné's two species. But the differences between *Cl. interstinctus*, L., and *griseus*, L. (= *Fieberi*, Jak.), are already well pointed out in Puton's well-known "Synopsis d' Hémiptères de France" (ii, p. 76);* yet in copying the descriptions by Linné, Mr. Douglas has left out just the most essential character of *griseus*, which also undoubtedly shows that this species is identical with Jakowleff's *Cl. Fieberi*. Linné says of this species: "*Antennæ fusco-nigricantes*," which character always belongs to the male of this species, but never to *Cl. interstinctus*, of which it is said, "*omnibus partibus pallidior*." The different colour of the dorsum, assigned by Linné, Mr. Douglas has observed, but this character distinguishes properly the females only, while the male also of *interstinctus* has the dorsum black as far as the apex.

As, however, it may not be unwelcome for British Hemipterists to know the essential differences between these species, I give a Synopsis of all the European (and Siberian) species of *Clinocoris* known by me, one of these hitherto undescribed. To this genus I also join the *Cimex ferrugatus*, Fabr., which differs chiefly by the long-produced lateral angles of the pronotum; Stål was also of the same opinion. Many exotic species, and also *Cl. dorsalis*, Jak., make an evident transition to the genus formed for *ferrugatus*, and which, quite erroneously, has been named *Sastragala*. (The true genus *Sastragala* was created by Amyot and Serville for a species from India, *S. uniguttata*, Don., which forms a genus quite distinct from the European, for which latter the name has been wrongly employed by recent authors).

SYNOPSIS SPECIERUM EUROPÆARUM GENERIS *Clinocoris*, Hahn, Stål.

1 (4) Dorsum abdominis testaceum vel interdum piceum, utrinque testaceo-maculatum. Connexivum solum angulis apicalibus segmentorum nigris. Pronotum angulis lateralibus fortiter productis (figs. *h* et *i*), apicalibus denticulo parvo transversali instructis.

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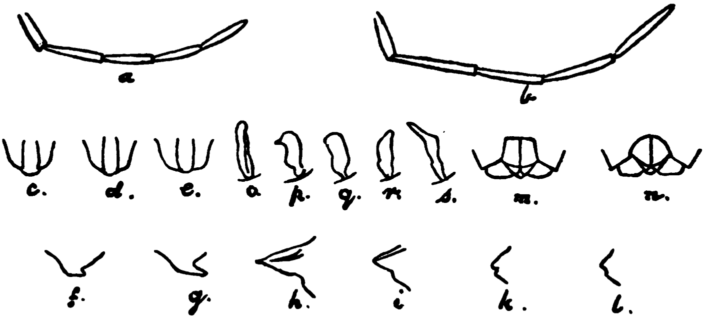
* From the descriptions given by Puton, Mr Douglas might have found that it is *interstinctus* and not *griseus*, which is one of the commonest *Hemiptera* in England, and that it is *griseus* (= *Fieberi*), which here and there might possibly be mixed with the former in collections.

2 (3) Caput medio nigro-piceum; crebre punctatum, clypeo lobis lateralibus distinctissime longiore (ut in fig. *c*). Pronotum angulis lateralibus longe spinoso-productis (fig. *h*), piceis. Scutellum macula nigro-picea. Antennæ articulo quinto secundo longiore. Styli genitales maris ut in fig. *s*. Segmenta genitalia feminæ fere ut in fig. *n* .... 1. FERRUGATUS, Fabr. (1).



Explicatio figurarum: *a*, antenna *interstincti*; *b*, id. *antennati*; *c*, apex capitis *grisei*; *d*, id. *interstincti*; *e*, id. *antennati*; *f*, angulus apicalis pronoti *interstincti*; *g*, id. *grisei* (*f* et *g* magis auctæ); *h*, angul. lateralis pronoti *ferrugati*; *i*, id. *dorsalis*; *k*, id. *antennati*; *l*, id. *interstincti*; *m*, segmenta genitalia feminæ *grisei*; *n*, id. *interstincti*; *o*, stylus genitalis maris *grisei*; *p*, id. *interstincti*; *q*, id. *antennati* (interdum etiam *interstincti*); *r*, id. *dorsalis*; *s*, id. *ferrugati*.

3 (2) Caput virescenti-testaceum, remotius nigro-punctatum, clypeo lobis lateralibus nonnihil longiore (ut in fig. *d*). Pronotum angulis lateralibus brevius et obtusius productis (fig. *i*), nigris. Scutellum macula destitutum. (Antennæ in exemplis desunt). Styli genitales maris ut in fig. *r*. Segmenta genitalia feminæ fere ut in fig. *n* .... 2. DORSALIS, Jak. (2).

4 (1) Dorsum abdominis nigrum. Connexivum nigro-fasciatum. Pronotum angulis lateralibus breviter dentiformiter prominentibus. Antennæ articulo quinto secundo æque longo vel hoc breviore.

5 (8) Pronotum angulis anticis denticulo brevi transversali instructis (fig. *f*). Venter haud nigro-punctatus. Antennæ utriusque sexus testaceæ, solum versus apicem fuscæ. Styli genitales maris in figs. *p* et *q* delineati (structura nonnihil variantes).

6 (7) Caput clypeo lobisque lateralibus æque longis (fig. *e*). Antennæ longiores (fig. *b*), articulo secundo latitudini capitis ad apicem oculorum longitudine æquali vel sub-æquali. Rostrum apicem coxarum sat longe superans. Pronotum angulis lateralibus paullo fortius prominentibus (fig. *k*). Pronotum, scutellum et hemielytra irregulariter rugulosa, interstitiis inter puncta convexis. Scutellum immaculatum. Venter lateribus sat obsolete concoloriter punctatus. ♂, Long. 8¾ mm., ♀, ignota. Sequenti similis, sed major et superne fere unicoloriter isabellino-testaceus, inferne magis lividescens..
3. ANTENNATUS, *n. sp.* (3).

7 (6) Caput clypeo lobis lateralibus nonnihil longiore (fig. *d*). Antennæ breviores (fig. *a*), articulo secundo latitudine capitis ad apicem oculorum fere ¼ breviore. Rostrum apicem coxarum intermediarum paullo superans vel basin coxarum posticarum sub-attingens. Pronotum angulis lateralibus obtusius prominulis (fig. *l*). Superne quam præcedens distincte lævius, magis nitidum. Scutellum

macula picea. Venter sub-lævis. Femina apice abdominis sanguineo; segmenta genitalia in fig. *n* delineata .... 4. INTERSTINCTUS, Linn. (4).

8 (5) Pronotum angulis anticis spinula transversali armatis (fig. *g*). Venter lateribus sat dense nigro-punctatis. Antennæ nigro-piceæ totæ (♂) vel articulis secundo et tertio obscure testaceis (♀). Rostrum apicem coxarum posticarum paullo superans. Caput clypeo lobis lateralibus distinctissime longiore (fig. *c*). Pronotum angulis lateralibus ut in præcedente, sed nigris. Color obscurus, fumatus. Fasciæ connexivi nigræ quam in præcedente multo latiores. Apex abdominis etiam feminæ superne nigro-piceus, inferne sordide testaceus. Styli genitales maris ut in fig. *o* delineatur. Segmenta genitalia feminæ in fig. *m* delineata...
5. GRISEUS, Linn. (5).

Åbo: *May* 30*th*, 1885.

[I confess that I omitted to consult the "Synopsis" of Dr. Puton, but I now see that, under the generic name *Elasmostethus*, *Cimex griseus*, Linn., is there given as a synonym of *Cimex interstinctus*, Linn.; and *Acanthosoma griseum*, *var.*, Flor, is cited as distinct, under the name of *E. Fieberi*, Jakowl., without reference to Linné. The points of difference noted are admittedly very small, except as to the coloration of the antennæ, and without an example before me I might not have seen the validity of a species established mostly, as it appeared to Flor, Fieber, and almost all other authors, on sexual or colour variation; still, as I said, *l.c.*, I did not impugn the correctness of Professor Reuter's conclusion, or his determination of the species, and we are all now greatly obliged by his present differential diagnoses and figures. I said "the *Clinocoris known to us* in Britain *as Cl. griseus* is one of the commonest;" of course if this is *Cl. interstinctus*, it is the true *griseus* that is rare—*mutatis mutandis*. We have certainly the *C. griseus* of De Geer, of which he records the remarkable care of the female for her young, which was independently confirmed by Mr. E. Parfitt (Brit. Hem., p. 103); Kolenati, however (Mel. Ent., iv, 61), in referring De Geer's *C. betulæ* to *Acanthosoma interstinctum*, Linn., adds "excluso citato Linnei *griseum*;" yet while he (p. 57) refers Linné's *C. griseus* to the genus *Raphigaster*, Lap., he still quotes for it De Geer's fig. 9, t. 14—the same that he does (p. 61) for *interstinctus!*—J. W. D.]

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(1) Syn.: *ferrugatus*, Fabr., 1787; *ictericus*, Pet. non Linn., 1787; *adustus*, Gmel., 1789; *ferrugator*, Fabr., 1794; *bispinus*, Wolff, 1800. Patria: Europa. In arboribus et arbustus variis, etiam in coniferis.

(2) Syn.: *dorsalis*, Jak., 1876: *Ståli*, J. Sahlb., 1878. Patria: Sibiria

(3) Patria: Græcia (Attica!), 2 ♂, communicavit Clar. D. E. Reitter.

(4) Syn.: *interstinctus*, L., 1758; *betulæ*, De Geer, 1773; *alni*, Ström, 1783; *agathinus*, Fabr., 1794; *griseus*, Flor, 1860; Fieb., 1861. Patria: Europa, Sibiria, in Betula et Alno, tempore vernali, etiam in Pino.

(5) Syn.: *griseus*, L., 1758; *griseus var.*, Flor, 1860; *Fieberi*, Jak., 1864. Patria: Europa, Sibiria, in Betula alba, sec. J. Sahlberg etiam in Pino.

DESCRIPTION OF A NEW SPECIES OF *LITHOCOLLETIS* BRED FROM BIRCH.

BY W. H. B. FLETCHER.

LITHOCOLLETIS ANDERIDÆ, *sp. n.*

Antennæ greyish; palpi grey externally, white internally; face white; head saffron; thorax with white and saffron scales, but owing to the damage done in pinning, I cannot give their arrangement. Anterior-wings deep bright saffron, with pearly-white markings, consisting of:—a short straight basal streak, dark-margined on the costal side, at the apex, and one-third of the distance back towards the base on the inner side; a short streak from the base on the inner margin dark-margined towards the costa, a fascia angulated on the side nearest the base, but less so on the outer side, dark-margined on both sides; three streaks on the costa, and two on the inner margin, dark-margined on the side nearest the base, the last costal streak being just over the dark apical patch; cilia dark grey, shaded off to white opposite the streaks. Posterior-wings grey, cilia grey, those on the costal side darker than those on the hind-margin. Body saffron, with many pearly-white scales.

Alar. exp., 2½—3 lines.

Allied to *Lith. Bremiella*, *lautella*, and *irradiella*, from which it may be distinguished by its smaller size and white face, from *Lith. ulmifoliella* it may be separated by the brightness of the pearly-white markings.

The larva feeds in *birch leaves* in October.

I bred this species in the spring of 1880, of 1883, and of 1885, but each time only a very few specimens. No doubt I have overlooked its small mine among those of young *Ornix* larvæ.

The species is named after the vast forest formerly surrounding Pevensey ("Anderida"), of which Abbott's Wood may be regarded as the heir-at-law.

I have to thank Mr. Stainton for his kindness in examining specimens.

Fairlawn, Worthing:
June 1*st*, 1885.

[I think I may add that the ground-colour of this new *Lithocolletis* is paler than in *L. Bremiella*, and the markings are white, not silvery.—H. T. S.]

A male Locust devoured by a female.—In Dr. Horváth's "Rovartani Lapok" for January, p. 18, E. Vángel relates that he reared to the imago-form two larvæ of the rare Locust, *Onconotus Servillei*, Fisch.; that he fed them with a common grass; that one proved to be a male, and the other a female, which soon coupled; and that immediately after coupling, the female ate up the male.—EDS.

NOTE ON THE LEPIDOPTEROUS GENUS *DOLESCHALLIA*.

BY W. L. DISTANT.

Considerable difficulty is, and has been, experienced in properly identifying some of the allied species of this genus. I have already been enabled to publish some explanatory remarks on three species, viz., *D. Bisaltide*, Cram., *D. Pratipa*, Feld., and *D. Polibite*, Cram. (Rhop. Malayana, p. 89); but as I find the question is still a complicated one to some students, a few further remarks may not prove supererogatory.

D. Bisaltide, Cram., is a rare species. The sexes—one of which agrees perfectly with Cramer's figure—are in the British Museum, and were Javan specimens in Horsfield's collection. Cramer gives Surinam for the habitat, which is probably a clerical mistake for Sumatra.

D. Pratipa, Feld., is closely allied to *D. Bisaltide*, and is recorded from Tenasserim, the Malay Peninsula and Java. It is probably common to the Indo-Malayan region.

D. Polibete, Cram., is the species that has caused the greatest perplexity, and this is owing to Cramer having figured two distinct species as the sexes of one. We must take his first figure (Pap. Ex., iii, t. 234, D.E.) as having priority, and fixing the type. This, as I have pointed out, is quite distinct from the other two species, and is very similar in appearance in both sexes. The British Museum contains examples from Silhet, Moulmein, Java, Borneo, and the Philippine Islands; my own collection contains specimens from the Andaman Islands and Java. But Cramer's second figure (Pap. Ex., iii, t. 235, C.D.) represents the male of a very distinct Amboinese species, the sexes of which, collected by Mr. Forbes, I have recently acquired.

This has caused the puzzle to Lepidopterists, and as the species from Amboina is thus shown to be without a specific name, I propose that it shall be termed *Doleschallia Crameri*.

1, Russell Hill Road, Purley, Surrey:
June, 1885.

Note on a strange food of the larva of Ephestia elutella.—In the same journal above mentioned, p. 59, J. Frivaldszky states that since 1879 he has had a bottle containing red pepper (*Capsicum annuum*) in powder, well closed with stout paper; that having opened it in the summer of 1884, he was very surprised to find a small caterpillar partly immersed in the red powder, and covered with a fine network of slight filaments. The larva soon transformed, and from the pupa emerged *Ephestia elutella*, Hüb.—Eds.

Variety of Melanippe fluctuata.—While looking round for *Biston hirtaria* in London this spring, my eldest boy picked up a very interesting aberration of this species. The usually dark central fascia of its fore-wings is white, with the contained central spot black, and the usually whitish broad spaces before and after the fascia are of a dark smoky-grey, thus showing a striking inversion of the natural colouring.—CHAS. G. BARRETT, London: *May 11th*, 1885.

Eudorea angustea locally double-brooded.—This species, the latest of the group to appear in the autumn, is said to hibernate, on the ground, I suppose, of the occasional occurrence of specimens in the spring. Last May, at Plymouth, when searching on the old walls round the harbour and on Drake's Island for larvæ of *Bryophila glandifera*, I found several larvæ of this species full fed, and also pupæ. From these the moths emerged after a few days. It, therefore, seems that this species produces a spring brood on the south coast when the winters are so mild as to allow the larva to feed through them, and this habit probably obtains, to some extent, throughout the south of England. I cannot remember, however, that I ever saw a spring specimen at Pembroke, where the moth was abundant in the late autumn.—ID.

Glyphipteryx oculatella bred.—The imago of this species abounds in some woods in this neighbourhood, but so locally as to have given me a strong hope of finding its larva. This hope was fulfilled last September, when, after a hunt in the tops of several *Junceæ* and *Glumaceæ*, the larvæ were found commonly in the spikelets of *Carex vulpina*, there being often two or three in a spike. They also feed on the fruits of smaller *Carices*, but, owing to the herbage having been much entangled and beaten down by the rain, I could only find one spike of the latter infested, and this I destroyed in examining it. My larvæ remained unchanged until April, and the imagines came out freely during May.—W. H. B. FLETCHER, Fairlawn, Worthing: *June 1st*, 1885.

The Entomology of Turkistan.—The Rev. Henry Lansdell, D.D., F.R.G.S., &c., has recently published two bulky volumes of experiences of travel in "Russian Central Asia, including Kuldja, Bokhara, Khiva, and Merv" (London: Sampson, Low, & Co., 1885), of extreme interest generally, and, at the present time specially, viewed in connection with the rather uncertain political conditions. They will be of lasting interest scientifically, because the author, in a very extensive appendix to the second volume, has gone to the trouble of having translated all the introductory remarks, and of adding the lists of species, in the very numerous already published parts on the Botany and Zoology of Turkistan in Fedchenko's great work on the subject. As this latter work is wholly in the Russian language (excepting the Latin diagnoses of new species), it has remained very much as a sealed book to the vast majority of students; therefore, we cordially welcome this opportunity of being able to read the generalizations of the various authors, and of recognising the enterprise of Dr. Lansdell, who, by going out of his way to add what some may think a dry appendix to a book of travel, has contrived to give the general scientific public an insight into the natural productions of the country, and to show (so far as he is able) the amount of work done by the enterprising traveller Fedchenko, and his devoted wife who accompanied him, and who since his premature death on the European Alps, has continued to edit the series of memoirs commenced under his auspices.—EDS.

Beræa pullata and Crunœcia irrorata bred.—It may be well to record the breeding of *Beræa pullata*, Curt., from a larva possessing the same Leptoceridous characters as have been indicated as present in that of *Beræodes minuta*—another confirmation of the true position of the *Beræa* group. The case is very like that of *Beræodes*, not much longer, but thicker, and the larva is remarkable for its reddish head and prothorax. Both larva and case agree with the descriptions given by Pictet under *Mystacides* (*Adicella*) *filicornis*, to such an extent that I consider it desirable the *Adicella* should be reared in order to make sure the author of the "Recherches" had not *Beræa* before him, as the two insects frequent similar localities.

I have also bred *Crunœcia irrorata*, Curt. This proves to be the maker of the small quadrangular cases found about rock springs, and as to the origin of which there has been much speculation. Pictet's account is at variance with my observations. I hope hereafter to give more extended notes on the life-histories of this insect and *Beræa pullata*.—KENNETH J. MORTON, Carluke, N.B.: *June* 15*th*, 1885.

Tachys parvulus, *Dej.*, *a species new to Britain.*—Among some beetles sent to me for names by Dr. J. W. Ellis I found a small Carabid very like *Tachys bistriatus* at first sight, but evidently not that species; when I was at Southampton a few weeks ago Dr. Sharp and I determined it to be *T. parvulus*, Dej. As, however, there seemed to be a slight doubt, I applied to Herr Reitter for a specimen, and he kindly lent me one from his collection; this exactly agrees with the one I received through Dr. Ellis, except that, being more mature, it is rather darker. *T. parvulus* belongs to the third section of the genus *Tachys*, as given in the "Naturgeschichte der Insect. Deutsch.," vol. i, p. 250; the other two species comprised in the section are *T. quadrisignatus* and *T. sextriatus*. The characteristics of this section are as follows: body more or less convex; antennæ only a little longer than the head and prothorax; prothorax with acute posterior angles; elytra with two, three or four deep striæ next suture; anterior tarsi simple in both sexes.

The following is the description of *T. parvulus*:—Long. ¾ lin. Dark brown or reddish-brown, with a slight metallic lustre; antennæ rather short, brownish, or brownish-yellow, with the base yellow; legs entirely yellow; forehead with two fine longitudinal lines on each side; prothorax sub-quadrate, slightly narrowed behind, strongly depressed at base, with posterior angles acute; elytra rather convex, with the sutural and three following striæ strong, finely but distinctly punctured, reaching almost to base, evanescent before apex; a fifth stria is obscurely indicated, and the eighth is deep from base to apex.

From *T. quadrisignatus* this species is distinguished by its unicolorous elytra, and from *T. bistriatus* by its more convex form, and the very different sculpture of the elytra, as well as by the posterior angles of the prothorax, which are blunt in *T. bistriatus*, but acute in *T. parvulus*; the antennæ of the latter species are shorter and stouter, and have the last joint rather stout, rounded at apex, and unicolorous, whereas in *T. bistriatus* the last joint is rather elongate and acuminate, and its apical half is of a much lighter colour.

The specimen now recorded was taken by Mr. J. H. Smedley, of Everton, Liverpool, who has asked me to describe it; he sends me the following account of its capture: "I went to the Wallasey Sandhills last September for *Parnassia palus-*

tris; I brought three or four large roots home, and when I opened the paper, I found the insect in question among the wet roots." This is the third rare or unique species of *Tachys* that has been found in the North of England; there is no doubt that these small coast *Carabidæ* are very liable to be introduced with ballast, and that they may occasionally establish themselves in small colonies, but there is no evidence to show that this is so in the case before us.

T. parvulus is recorded from Germany, Spain, South France, Piedmont, Switzerland, and Syria, so that it is an insect that we should hardly expect to meet with so far north.—W. W. Fowler, Lincoln: *June* 10*th*, 1885.

Note on Synchita juglandis and S. mediolanensis.—On the 9th inst., the Rev. H. S. Gorham and myself met with a colony of a species of *Synchita* in an old blown-down beech near Lyndhurst; the insect was found in larval, pupal and imago states, and the specimens varied extremely in size. On attempting to determine the species, I found some difficulty in deciding to which of the two species in our British Catalogue our examples should be referred. *S. juglandis* has been long recognised as an inhabitant of our country, though of extreme rarity in collections; and in the Entomologist's Annual for 1868, p. 65, Mr. Rye introduced with considerable hesitation a second species (*S. mediolanensis*) to our list, from examples found by Charles Turner in the New Forest. The series of specimens found by Mr. Gorham and myself show much variation in size and colour; the paler examples agreeing well with the supposed *S. mediolanensis* in my collection, and fully matured ones with *S. juglandis*. Neither Mr. Gorham nor myself entertains any doubt, however, as to all being the same species, so that I feel pretty certain we at present possess in Britain only one species of *Synchita*, viz., *S. juglandis*, auct. Since the time when Mr. Rye's note above referred to was written, an important memoir on the European *Colydidæ* has been given us by Reitter, and this enables us, I think, to decide with certainty that our British species really is the old *S. juglandis*. Reitter gives three European species of the genus, viz., *S. juglandis*, *S. separanda*, Reitt., and *S. mediolanensis*. Of *S. separanda* I possess specimens from South-Western Europe, and think it probably not distinct from *S. juglandis*. *S. mediolanensis* I have not seen; but it is clear our supposed examples of that species are not it. I may here mention that Reitter calls this genus *Ditoma*, not *Synchita*, our genus *Bitoma*, or *Ditoma* as purists prefer to call it, taking with him the name of *Synchitodes*, Crotch, the name *Synchita* being dropped altogether. This course causes extreme confusion, and, so far as I can see, does not even pretend to be of any advantage, so I think should be abandoned.—D. Sharp, Southampton: *May* 21*st*, 1885.

Hydradephaga in salt water.—Mr. Donovan's note (*cf. ante* p. 13) reminds me that some months ago I kept several species of *Hydradephaga* and *Palpicornia* in a vessel of sea water, in order to ascertain whether they would be in any way affected. As I had anticipated, they lived in perfect health for some little time, and died at last only owing to the unnoticed decease of one of the large *Mollusca* which was inhabiting the same vessel, and whose dead body tainted the water to such a degree as to kill all the other inmates. The species experimented upon were *Haliplus ruficollis*, *Hydroporus planus*, *Agabus bipustulatus*, and *Helophorus aquaticus*. The three latter seemed perfectly at their ease throughout; the former, however, evidently found great difficulty in diving, owing to the buoyancy of the water, and remained almost entirely at the surface.

Whether these insects would be found at large in salt water is another matter. I have taken numbers of *Helophori* (four species) beneath seaweed upon the shore, and it is possible that these may have inhabited, at any rate for a time, the permanent pools which lie just below high water mark. On the other hand, however, I have never been able to capture water-beetles in ditches directly connected with the sea, although I have frequently endeavoured to do so, and have generally found that water sufficiently saline to support seaweed is consistently avoided by insects. The question of food has probably much to do with this fact, for as very few of the aquatic insects take the water into their systems for purposes of respiration, the presence of certain salts in the surrounding fluid can scarcely exercise any particular influence upon them. But it may very well be that these insects, finding their food in fresh water only, avoid salt water for that very reason, and that those which may be occasionally found in saline pools, or even in the sea itself, have found their way into so unusual a habitation owing to "circumstances over which they had no control."—THEODORE WOOD, Freeman Lodge, St. Peter's, Kent: *June 4th*, 1885.

Coleoptera found in salt water.—Mr. C. Donovan's note in the June number of this Magazine (p. 13), relative to the capture of *Dytiscus marginalis* in the sea, recalls to my mind the circumstances under which I took the only *Cybister Roeselii* I have ever seen alive. About an hour before sunset one very warm evening in August, 1876, while I was waiting for the ship's boat on the pier at Besika Bay, I saw a large beetle on the wing, which at first sight I thought was one of the larger *Buprestidæ*. To my surprise, it deliberately flew into the sea, close enough to the pier to be caught by hand, and proved to be a ♂ specimen of the fine water-beetle *Cybister Roeselii*. There was no fresh water stream within a mile of the spot.

At Kavala, Turkey, a large specimen of *Hydrophilus piceus* was caught in the sea at a "seining party" (if I remember rightly, it was actually in the net among the fish), and was given to me alive.—JAMES J. WALKER, H.M.S. "Cherub," Portland: *June 15th*, 1885.

[Seeing Mr. Donovan's note above referred to, I remembered that Mr. Walker had told me about his capture of *Cybister Roeselii*, and I therefore wrote and asked him for further particulars, which he kindly sent me. Although the fact of the three beetles having been taken in salt water is curious, yet nothing is proved by it; the *Dytiscidæ* have strong wings, and can fly a considerable distance, and that they cannot instinctively tell their right element is proved by the fact that they so often mistake glass for water. Every Coleopterist who possesses a greenhouse or hotbed in the country must be aware of this; much less then can they be expected to tell the difference between salt water and fresh. They are, too, very tenacious of life, and can live for some time in a medium that would be far more injurious to them than salt water. The occurrences related are evidently purely accidental; although taking into consideration the curious Hemipteron *Halobates*, there is no reason why we might not expect to find *Coleoptera* also inhabiting the sea as their native element.—W. W. FOWLER.]

Coleoptera on Snowdon.—During a few hours spent on Snowdon on Whit Monday (May 25th) with Mr. Alfred O. Walker, of Chester, I took *Nebria Gyllenhalii* in abundance, at elevations from 2000 feet to the summit (3570 feet), at which latter place it was not uncommon to find three or four under one stone, and that lying among unmelted snow. This seems to be the time of emergence from the pupa of this species, as many of the specimens were soft and devoid of the deep blue-black colour seen during life when mature. *Pterostichus æthiops* was represented by a single specimen, while *Cryptohypnus riparius* and *Patrobus excavatus* were common from 1500 feet to the summit.—JOHN W. ELLIS, 101, Everton Road, Liverpool: *June*, 1885.

Obituary.

Joseph Sidebotham, F.L.S., F.R.A.S., died at Bowdon, Cheshire, on May 30th, aged 62. He was born near Hyde, and after having completed his education, was placed with a firm of calico printers in Manchester. Subsequently he became a partner in the Strines Printing Company, from which he retired a few years ago, and settled at Bowdon. Mr. Sidebotham was a born naturalist, and obtained much proficiency in Botany and Entomology, making important discoveries in the latter branch, especially in *Coleoptera*. Latterly he attended to other departments of science, and he published several important papers on Astronomy, Microscopy, and Photography. About ten years ago his health broke down under an attack of pneumonia, and frequent visits to the South of France became necessary in consequence. Although for many years a Fellow of the Linnean and Royal Astronomical Societies, and a Member of the Entomological Society of London, he was little known personally in the metropolis. But his zeal in connection with the various scientific institutions of the district with which he was more intimately associated was unbounded, as also was his munificence; the Manchester naturalists have reason to feel that they have in him lost a friend and fellow-worker whose place it will be difficult to fill. In addition to his scientific attainments, he was known and respected in his magisterial capacity as a J.P.

Nicholas Cooke, of Liscard, Cheshire, died suddenly, under very distressing circumstances, from heart disease, on the 19th May, at the house of Mr. Briggs, at Leatherhead, whither he had gone to spend the evening. He was born at Liverpool on January 14th, 1818, and was educated (with his brother Benjamin and other naturalists, *cf.* Ent. Mo. Mag., xix, p. 238) at the Friends' School at York. When quite young he appears to have entered the service of Messrs. W. H. Smith & Son, the booksellers, for our first personal acquaintance with him was made at one of their bookstalls at a northern station. But for many years subsequently he was in the service of a firm of wool-brokers in Liverpool. As an entomologist, Nicholas Cooke's scientific attainments were scarcely on a level with those of his brother Benjamin, but as an observant and successful collector of British *Lepidoptera* he was almost without an equal. For many years he collected almost annually in the Highlands of Scotland, and made important discoveries. He will be greatly missed by the Lancashire and Cheshire entomologists. It is said that his magnificent collection has been bequeathed to the Corporation of Liverpool.

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

As, owing to other engagements, it will be impossible for the Ray Society to publish the 3rd volume of my "Monograph of the British Phytophagous Hymenoptera" for at least three years, it has been suggested to me that a Synopsis of the remaining sub-families of the *Tenthredinidæ* would be of use to the students of saw-flies in this country, pending the publication of the work itself. I have accordingly drawn up tables of the genera and species not described in the two volumes which have already appeared. Besides the tables I have added critical remarks on the more difficult species, and have given references to such of the species as have been figured in the first or second volume of my work.

CIMBICIDÆ.

CIMBICIDES.

Body large, hairy or pilose; lanceolate cellule divided by a straight cross nervure; 1st cubital cellule receiving both recurrent nervures; mandibles large; head swollen at the sides, projecting beyond the eyes, which are small, parallel, and situated well in front.

1 (2) Blotch large, labrum small, clypeus longer than it, incised............Cimbex.

2 (1) Blotch absent; labrum larger than clypeus.

3 (4) Hind coxæ widely separated; antennæ with 5 joints before the club; hind femora toothed; labrum and clypeus black ....Trichiosoma.

4 (3) Hind coxæ continuous; antennæ with four joints before the club; hind femora simple; labrum and clypeus white ....Clavellaria.

CIMBEX, Oliv.

Blotch large, wide; clypeus shortly incised, labrum small; antennæ 6-jointed; hind coxæ widely separated, simple, anterior more oval, closely continuous.

1 (2) Clypeus and pronotum clear yellow; wings yellowish, the fore-half fuscous throughout; mesonotum and base of abdomen punctured......*humeralis*.

2 (1) Clypeus and pronotum reddish-yellow or black; wings not fuscous throughout in front; mesonotum impunctate.

3 (4) Thorax, femora, the base, sides in part and lower side of abdomen violaceous; ♂ apex of abdomen black or dull brownish, and with a violet iridescence... *connata*.

4 (3) Thorax, femora, and base of abdomen not violet.

5 (6) Pubescence on head, thorax, and base of abdomen longish, black, or dark fuscous; wings with a fuscous fascia in the basal cellule, and a fuscous border at apex; head and thorax rarely yellow ....*sylvarum*. (pl. 5, fig. 1, vol. ii, ♀).

6 (5) Pubescence on head, thorax, and base of abdomen woolly, close, thick, griseous, pale or yellowish; wings not marked with fuscous; head, thorax, and abdomen for the greater part yellow ....*lutea.*

1. CIMBEX SYLVARUM, Fab.

= *betulæ*, Br. & Zad., = *lutea*, Thoms.

Black, antennæ and tarsi luteous; body covered with a black or fuscous longish pubescence; wings hyaline; a fascia along the transverse basal nervure and the outer margin, fuscous. Length, 7—13½ lin.

The abdomen may be red in the middle in both sexes (= *var. sylvarum*), entirely red in the ♂; the tibiæ and tarsi luteous; the middle segments of abdomen pale testaceous (= *varians*, Lep.), and the fore part of mesopleuræ, the middle lobes of mesonotum laterally, scutellum, legs and abdomen reddish-yellow, and the wings yellowish.

Common and very variable.

2. CIMBEX CONNATA, Schr.

= *C. violascens*, Thoms.

Fuscous-violaceous, the head, pronotum, pleuræ, tibiæ, and tarsi brownish-testaceous; coxæ and femora violaceous; abdomen bright luteous, the two basal segments entirely, the third broadly in the middle, apical segments laterally, and the greater part of the ventral surface, violaceous; antennæ luteous; head, thorax, and base of abdomen covered with a griseous pubescence, which is darkest on the metathorax; wings hyaline, more or less spotted with fuscous at base.

The ♂ is violet-black, the apex of abdomen dull fuscous; antennæ and tarsi luteous; tibiæ brownish; head, pronotum, and pleuræ dull brown. The wings are coloured as in the ♀, but have a much more clearly defined steel-bluish-violet iridescence. Length, 10—12 lin.

The distinctions between *connata* and *lutea* lie in the darker coloured thorax and base of the abdomen in the former, these parts being always, for the greater part, fuscous for the ground colour and most distinctly violaceous, this being also the case with the coxæ, trochanters and femora; the wings are darker at the median cellule and apex, while they have also a more distinctly marked violet iridescence; the pubescence on thorax and abdomen is shorter and thinner, the spurs are longer and thinner, and generally it is a larger insect than *lutea.*

Rare.

3. CIMBEX LUTEA, L.

= *brevispina*, Thoms., = *saliceti*, Br. & Zad.

Luteous; head and thorax darker coloured than the abdomen and legs; covered with close silky white or yellowish pubescence; wings pellucid, sometimes with a yellowish tint.

The ♂ is covered with longer pubescence, and is fuscous or blackish in colour. Length, 7—15 lin.

The luteous forms of *lutea* are readily separated from the normal forms of *sylvarum*, which have always the head, thorax, and the greater part of the legs bluish-black; but the lighter coloured forms of the latter come very near the darker coloured examples of *lutea*; these, however, may always be separated from *sylvarum* by the pubescence, which, in the former, is thick, moderately long, and always griseous, pale or yellowish, never fuscous as in *sylvarum*, which has it somewhat longer, but not so close; the hairs on the abdomen are also longer, more scattered, and not so silky as in *lutea*; the wings in *lutea* are more yellowish, and there is no fuscous cloud in the median cellule, nor has the apex a fuscous border.

The reddish-banded males of *sylvarum* are easily separated from those of *lutea*, which have always the abdomen black, except in one aberration; that again has sufficient distinctive characters in the colour of the head, thorax, and wings; but the only characters that I can find to separate the black males of *sylvarum* from *lutea* are that the median cellule of the former has a fuscous cloud, and the apex is always fuscous; and that the club of the antennæ is shorter and thicker, being not much longer than the two preceding joints together; in *lutea* they are not so distinctly pyriform, and are considerably longer than the two preceding joints together. The wings in *lutea* ♂ have a well-marked steel-blue iridescence, but I cannot say if this is a constant character.

Rare.

4. CIMBEX HUMERALIS, Fourc.

A species easily known by the characters given in the table.

TRICHIOSOMA, Leach.

Blotch absent; labrum large, clypeus distinctly incised; hind femora large, long, toothed beneath; hind coxæ widely separated; body covered with long hair.

1 (2) Tibiæ fuscous .... *betuleti*, Kl.

2 (1) Tibiæ testaceous or yellowish.

3 (4) Femora clothed with black hairs, distinctly violaceous; abdomen clothed at base with yellowish hairs, with short fuscous hairs in middle, and with long greyish or yellowish hairs at apex .... *Scalesii*, Leach. (pl 5, fig. 2, vol. ii, ♂).

4 (3) Femora clothed with pale hairs.

5 (6) Abdomen dull black, covered uniformly with long grey hairs; the apex and sides of abdomen sometimes reddish; the tibiæ not darker than tarsi .. *lucorum*, L.

6 (5) Abdomen bronzy-black, the hairs on base longer than on middle or apex; the apex, sides, and belly usually ferruginous, sometimes black; tarsi paler than tibiæ .... *vitellinæ*, L.

1. Trichiosoma vitellinæ, L.

The amount of reddish colour on the abdomen varies considerably; sometimes the apical third above, the sides and the belly from base to apex are reddish, sometimes only the sides and apex, and more rarely the reddish colour is entirely absent. The latter is the case with all the specimens bred from the larvæ figured on pl. x, figs. 14 and 15, vol. i; these also being much smaller (7 lines only) and more shining than usual. In the ♂ the hairs on the thorax and abdomen are usually more reddish or yellowish in tint compared with the female; the middle of the antennæ is generally testaceous, seldom is it entirely black.

This is the largest species in the genus, although very small specimens are also found. As a rule the reddish colour of the sides, apex, and lower side of the abdomen readily separates it from *lucorum*, but as this is not a constant character, and as the same colour also occurs in *lucorum*, the most reliable point of distinction lies in the abdomen of *vitellinæ* being much more shining and bronzy than in *lucorum*, besides which, the hairs on the middle and apex are much shorter, the colour of the hairs on the thorax and abdomen having also a reddish tinge.

2. Trichiosoma Scalesii, Leach.

= *sorbi*, Htg.

The black hairs on the violet coloured femora easily separate this rare species from *vitellinæ*; it is also much smaller, and the hairs on the abdomen are differently distributed and coloured, being long and reddish at the base, short and fuscous on the middle, and longer and yellowish at the apex, while in *vitellinæ* the colour is uniform and they are scarcely longer at apex than in the middle.

3. Trichiosoma lucorum, L.

= *laterale*, Voll.

The long grey hairs, nearly uniformly spread over the thorax and abdomen, readily distinguish this common species. The abdomen is often reddish beneath, at the sides and apex.

4. Trichiosoma betuleti, Kl.

Apart from the fuscous coloured tibiæ, which separate it readily from the other British species, *betuleti* differs from *lucorum* (of which it is considered a var. by Thomson) by the reddish hairs on the thorax and abdomen, and by the latter not being uniformly covered with hairs of the same length.

CLAVELLARIA, Oliv.

Posterior coxæ placed closed together; labrum large, apex rounded, antennæ with four joints preceding the club; claws simple; labrum and clypeus white.

This contains only one species, the well-known *C. amerinæ* (pl. 5, fig. 3, vol. ii, ♀).

ABIIDES.

Body of moderate size (3—4 lines); lanceolate cellule constricted in the middle; 1st cubital cellule receiving both recurrent nervures or only one.

1 (2) First cubital cellule receiving both recurrent nervures; eyes diverging on inner side, confluent on top in ♂; antennæ 6—7-jointed; sutures on head and thorax distinct .... **Abia.**

2 (1) First cubital cellule receiving only one recurrent nervure; eyes converging on inner side, not confluent at top in ♂; antennæ 5-jointed; sutures on thorax and head obsolete .... **Amasis.**

ABIA, Leach.

1 (2) Antennæ yellowish, the club 3-jointed; base of abdomen closely punctured; a keel in centre of the basal two segments; body metallic-green. = **Abia,** (*sensu str.*) .... *sericea*, L. (pl. 5, fig. 5, vol. ii).

2 (1) Antennæ black, the club 2-jointed, or more rarely the last joint indistinctly biarticulate; abdomen finely punctured, the base not more deeply punctured than the rest; an indistinct keel on the basal segment. = **Zaræa,** Leach.

3 (4) Fourth joint of the antennæ dilated; carina at base of abdomen distinct; base of abdomen black in ♂; fascia in wings irregular, not extending across .... *nigricornis*, Leach.

4 (3) Fourth joint of antennæ not dilated; the carina at base of abdomen indistinct; base of abdomen white in ♀; the fascia in wings broad, extending right across .... *fasciata*, L. (pl. 5, fig. 4 ♀ and 4*a* ♂, vol. ii).

AMASIS, Leach.

1 (2) Body and legs entirely black .... *obscura*, Fab.

2 (1) Abdomen more or less saffron-yellow; legs more or less white... *crassicornis*, Rossi. (pl. 5, fig. 6, vol. ii, ♀).

The only record I have of the occurrence of *A. obscura* is that mentioned by Stephens in his "Illustrations." "Said to have been found in Lincolnshire; the only specimens I have seen are in the British Museum." Stephens is also the recorder of *crassicornis* as a British insect. "The only examples I have seen of this pretty species are in the British Museum; they were taken near Bristol." These references are distinct enough; but I may remark that the late Mr. Frederick Smith was very sceptical of either of the species being British. Certainly further evidence of the distribution of the species in this country is very desirable.

(*To be continued*).

REVISION OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ*.

BY E. L. RAGONOT,

President of the Entomological Society of France.

(*Concluded from page* 32.)

Nephopteryx abietella, S.V.—This insect has long, but wrongly, been called *abietella*, for in the Vienna Catalogue it is simply mentioned as the pine moth, "Tannen Schabe, *T. abietella*," which cannot constitute a description, so that we must retain the name of *decuriella*, given to the insect by Hübner.

Under the name of *abietella*, two species are confounded; the true *decuriella*, Hb. (*abietella*, S.V.), Zincken, and the *sylvestrella* of Ratzeburg, which are quite different insects, though they resemble one another very much. *Decuriella* is always of a uniform grey colour, and the larva is reddish-brown, with a double paler dorsal line and three fine yellowish lines on each side; head and second segment reddish-brown; it feeds in the cones and decayed wood of pines.

Sylvestrella, on the contrary, is a larger insect, with a large patch of reddish-brown before the first line. The larva is pinkish-white, changing to greenish, without any lines; the head is reddish-brown, the second segment brown-black, ordinary spots very distinct. It lives in the trunks of old firs, under the bark, causing abundant exudations of resin.

Sylvestrella is well figured by Herrich-Schäffer as *splendidella*, fig. 43, not fig. 44, which is *Eužophera pinguis*. It does not appear to have been noticed as occurring in England.

The genus *Dioryctria* has been created by Zeller on account of the peculiar form of the antennæ. The species of the genus appear to feed only on *Coniferæ*, and have great a family likeness.

Nephopteryx roborella, Fab.—This insect was first noticed by Schiffermüller and Denis in their Catalogue, as follows:—"14. Hageïchen-Schabe. *T. roborella*," so that, like *abietella*, the name of *roborella* must be left aside and re-placed by that of *spissicella*, given to the insect in 1777 by Fabricius. It was subsequently named by Haworth *legatea*, and by Stephens *legatella* and *cristella*.

As already observed, *spissicella* is the type of the family *Phycitidæ*, and of the genus *Phycita*. The narrowness of the fore-wings, the length of the veins, the shortness of the cell of the hind-wings, the large size of the "knot" of the antennæ, distinguish the genus *Phycita* from *Nephopteryx*, and the species of *Phycita* have very similar markings.

The larva of *spissicella* feeds on oak, and is well known.

Nephopteryx genistella, Dup.—This appears to be a coast insect. I have found it in several places on the Channel, such as Granville and St. Malo, &c. The larva feeds on *Ulex europæus*, and has been described by Mr. Buckler. The perfect insect has been described several times as follows: *Phycis genistella*, Dup., *Neph. ulicella*, H.-S., *Neph. albilineella*, Stgr., *Davisellus*, Newman, and *Pempelia albariella*, Knaggs.

Pempelia carnella, L.—This insect was first described by Scopoli as *semirubella*. Of this species, as happened with *Teras Logiana*, the variety chanced to be published as the type, and *vice versâ*. *Semirubella* has the costal half of the fore-wings red and the inner margin yellow; sometimes the yellow is nearly absent. The commonest form of the species is the variety *sanguinella*, Hb., in which the costa is distinctly whitish.

The perfect insect differs very little structurally from the other *Salebria* (*Pempelia*, auct.), so that there is no reason at present to separate it from its congeners.

The larva has been described by Mr. Buckler, who bred it from ova. Anton Schmid found an adult larva in a light web on the ground under a plant of *Lotus corniculatus*, the flowers of which were eaten. A life-history of the larva found at large is a desideratum.

Pempelia ornatella, S.V.—The description in the Vienna Catalogue is very brief, but applies well to the insect; it says: "pale brown bluish-white striated moth. *T. ornatella*."

It is certainly the species figured by Hübner under the name of *dilutella*, no other species agrees so well with the figure and description. The latter is as follows:—"It is of a pale violet-brown colour, its narrow fore-wings are, however, mixed with grey, the hind margin whitish, and have two whitish, dark-shadowed, sinuous lines, between which, in the median space, there is a whitish patch, in which are placed two black spots; fringes brown-grey. Hind-wings and abdomen ash-grey."

Zincken quotes *dilutella*, Hb., as a synonym of *Gymnancyla canella*, saying that he is acquainted with *canella* only by the figure of *dilutella*, Hb., without stating why he refers *dilutella*, Hb., to *canella*, S.V.

Treitschke mistook *Ancylosis cinnamomella*, Dup., for *dilutella*, Hb., with which it agrees in hardly any respect. Duponchel supposed that Hübner's *dilutella* might be *obductella*, F. v. R.

Zeller could not make anything of Hübner's figure; he says, however, that the palpi appear too long and too horizontal for *adornatella*, not noticing that the same mistake of the engraver occurs frequently in Hübner's work.

Ornatella, S.V., has also been described as *criptella*, Hb., *criptea*, Hw., and *perornatella*, Gn.

The larva is not yet described; it is stated by E. Hofmann to feed on *Thymus serpyllum* in May.

Pempelia dilutella, Stt.—This is *adornatella*, Tr.; the larva has been described by Mr. Porritt in the "Entomologist" of 1883, p. 212, and feeds on wild thyme, but Mr. Porritt does not state how.

Pempelia subornatella, Dup. (*serpylletorum*, Z.).—The larva has been described several times. It feeds on *Thymus serpyllum*, but Mann says that he has bred the insect from *Globularia vulgaris*.

Pempelia obductella, F. R.—The larva feeds on *Origanum*, *Clinopodium*, *Calamintha*, and *Mentha*; it has frequently been described.

Pempelia fusca, Hw.—Zincken was under the impression that this species was Hübner's *spadicella* (figs. 225, 226), and described it under that name, as is proved by an original drawing of Zincken's *spadicella*, which was seen by Zeller, but on examining the figures 225 and 226, only the latter can be referred to *fusca*. 225 is most likely the same as *janthinella*, Hb., fig. 374, 375, for only of that species, with long narrow wings and knotted antennæ, can the colour of the fore-wings be described as "coppery-brown." *Fusca*, Hw., is figured and described by Duponchel as *janthinella*, vol. x, pl. 281, fig. 2, page 235, not pl. 283, fig. 8, p. 351 (as erroneously stated in Dr. Wocke's Catalogue), which is the true *janthinella*, Hb.

Very little is known of the larva of *fusca*, Hw. Mr. Porritt, it is true, has obtained it from the egg, but did not succeed in rearing it to the perfect state, nor could he learn its natural food-plant. Dr. Wocke indicates *Vaccinium myrtillus* as the food-plant.

Pempelia formosa, Hw.—This was described by Duponchel (vol. x, pl. 280, fig. 2, p. 213) as *Phy. dubiella*; but in Duponchel's collection under that name there was one *formosa* and one *spissicella*, which accounts for his observation that he had received a specimen (of *dubiella*) bred from a larva feeding on oak. The larva has been described by Newman, Buckler, Stainton, and Stange.

Pempelia hostilis, Steph.—This moth was described by Stephens, but being quite unknown then on the continent, Zeller, in 1846, quoted it as a synonym of *P. adelphella*, F. v. R., without giving himself the trouble (as he wrote me) to verify whether it was the same insect or not. All the authors since 1846 have followed Zeller, and Mr. Stainton, who probably had no opportunity of seeing a real *hostilis*, Steph., described under this name an *adelphella*, F. v. R., received from Zeller. In this he was followed by von Heinemann.

Considerable confusion has existed with regard to this species and its nearest ally, *rhenella*, Zk., in Germany. Both belong to the genus *Nephopteryx* (Hb.), Z., the maxillary palpi of the male being filiform; whilst those of *adelphella*, like all the species of *Pempelia*, Z., have a long yellow pencil-like tuft enclosed in a groove in the labial palpi.

Rhenella, Zk., was first described by Hübner (fig. 70, text page 35) under the name of *palumbella*, but as this name had already been employed by Schiffermüller and Denis for a Phycid, Zincken was obliged to change the name, giving that of *rhenella*, which name was accepted by Hübner, who quotes it as *rhenalis* in his catalogue.

Treitschke followed Zincken, but the description which he gives of the larva applies to that of *adelphella*.

Duponchel (pl. 280, fig. 1*a*) figures and describes *rhenella*, Zk., but he figures (fig. 1*b*) as a variety another Phycid, to which I have given the name of *Acrobasis Fallouella* in the "Petites Nouvelles Entomologiques" of 1871, p. 147.

Fischer von Röslerstamm describes and figures the true *rhenella*, but says nothing of the larva, only remarking that the description given by Treitschke belongs to *adelphella*.

Zeller, in 1846, describes also *rhenella*, Zk.

Herrich-Schäffer, after describing *rhenella*, figures and describes as a variety the narrow-winged species which is *hostilis*, Steph.

Von Heinemann, taking Herrich-Schäffer's figure of *rhenella* as the type, describes *hostilis*, Steph., under the name of *rhenella*, adding that the larva feeds on *Populus tremula*. Mr. Snellen follows von Heinemann for this insect.

Stephens published a *rhenella*, but, according to Doubleday, the species is referable to *advenella*; the figure in "Wood" is not recognisable.

Rhenella, Zk., very much resembles *hostilis*, but it is always broader-winged; the ground colour is of a much purer and paler grey, and the band before the first line much broader and blacker, thus forming a greater contrast than in the sombre looking *hostilis*. The differences between the larvæ are striking; that of *rhenella* being apple-green, tinted with sulphur, especially behind the incisions, and bears three irregular pale yellow lines on each side of the dorsal vessel. Head pale amber marbled with yellow, second segment with a concolorous plate, having a few brown spots on each side; fore-legs green. It feeds on *Populus nigra*, *P. canadensis*, &c.

The larva of *hostilis*, Steph., on the contrary, is chocolate-brown with a rosy tint, and with three interrupted yellowish lines, that on the side so narrow that the ground colour seems to form a broad dark band. The spiracular line broad, rosy, bordered above and below by a yellow line. Head shining black, with two pale streaks; second segment black on the sides, yellowish in the middle. Fore-legs black. The larva might also be described as greenish-yellow, with a dorsal and two fine chocolate-brown sub-dorsal lines, below which is a very broad band of the same colour, which extends to the head, spiracular line . . . . It feeds only on *Populus tremula*.

True *rhenella*, Zk., and *adelphella*, F. v. R., do not appear to have been found in England. I find both *rhenella* and *hostilis* near Paris.

Pempelia betulæ, Göze.—The synonymy given in Dr. Wocke's Catalogue appears correct, and *tristrigella*, Steph., is certainly this insect. The larva feeds on birch, and has been described several times.

Pempelia palumbella, S.V.—In Dr. Wocke's Catalogue, *albariella*, H.-S., fig. 37, is quoted as a synonym, but in error, for the figure very well represents Zeller's *albariella*. The larva has been described by von Hornig as feeding on *Polygala chamæbuxus*, and in England it might feed on *P. vulgaris*, but the true food plant of *palumbella* is *Erica cinerea*. M. de Joannis found it plentifully on this heath in Jersey last spring.

SYNONYMIC LIST OF THE BRITISH SPECIES OF *PHYCITIDÆ* AND *GALLERIDÆ*.

PHYCITIDÆ, Rag.

PHYCITINÆ, Rag.

PHYCITA, Curt., Rag.

1 **SPISSICELLA**, F.
  spissicornis, F.
  roborella, S.V., Zk.
  legatea, Hw.
  legatella, Stph.
  cristella, Stph.

DIORYCTRIA, Z.

2 **DECURIELLA**, Hb.
  abietella (S.V.), Zk.

NEPHOPTERYX, Hb., Z.

3 **HOSTILIS**, Stph.
  rhenella, var., H.-S.
  rhenella, Hein.

4 **GENISTELLA**, Dup.
  ulicella, H.-S.
  albilineella, Stgr.
  Davisella. Newm.
  albariella, Knaggs.

SALEBRIA, Z., Hein.

5 **PALUMBELLA**, S.V.
  contubernella, Hb.
  contubernea, Hw.
  v. cinerea, Westw.

6 **BETULÆ**, Göze
  obtusella, Zk.
  christella, Frr.
  holosericella, F. R.
  tristrigella, Stph.

7 FORMOSA, Hw.
perfluella, Zk.
dibaphiella, Hb.
dubiella, Dup.

8 OBDUCTELLA, F. R.
dilutella, Dup.
origanella, Schl.

9 FUSCA, Hw.
carbonariella, F. R.
posticella, Zett.
janthinella, Dup., pl. 281, fig. 2

10 SEMIRUBELLA, Sc.
carnella, L., Dup., 276, fig. 3*b*
var. sanguinella, Hb.
carnella, Dup., 276, 3*a*

EPISCHNIA, Hb., Z.

11 BOISDUVALIELLA, Guenée
Farrella, Curt.
Lafauryella, Const.

HYPOCHALCIA, Hb., Z.

12 AHENELLA, S.V.
aeneella, Hb.
ahenella, Hb.
obscuratus, Hw.
tetrix, Hw.
luridella, Schl.
fuliginella, Dup.
bistrigella, Dup.

CRYPTOBLABES, Z.

13 BISTRIGA, Hw.
rutilella, Z.
lugdunella, Mill.

ACROBASIS, Z.

14 ZELLERI, Rag.
tumidella, Zk., Tr., Z., Stt.

15 TUMIDANA, S.V.
verrucella, Hb., non S.V.
tumidalis, Hb. Cat.
rubrotibiella, F.R., Z., &c.

16 CONSOCIELLA, Hb.
tumidella, Dup., 280, 3*b*

17 SODALELLA, Z.

EURHODOPE, Hb.

RHODOPHÆA, Gn., sub-gen.

18 SUAVELLA, Zk.
porphyrea, Curt.

19 ADVENELLA, Zk.
palumbea, Hw.
rhenella, Steph.
recurvella, Gn.

20 MARMOREA, Hw.
epelydella, Z.

MYELOIS, Hb., Rag.

21 CRIBRELLA, Hb.
cribrumella, Hb.
medullalis, Hb.
cardui, Hw., Steph.

22 CIRRIGERELLA, Zk.

23 CERATONIÆ, Z.
ceratoniella, F. R.
Pryerella, Vaugh.
Zellerella, Sorhag.

NYCTEGRETIS, Z.

24 ACHATINELLA, Hb.

EUZOPHERA, Z.

25 CINEROSELLA, Z.
incanella, Ev.
artemisiella, Stt.

26 PINGUIS, Hw.
Fischeri, Z.
splendidella, H.-S., fig. 44

PEMPELIA, Z., Hein.

27 ORNATELLA, S.V.
dilutella, Hb.
criptella, Hb.
criptea, Hw.
perornatella, Gn.

28 SUBORNATELLA, Dup.
serpylletorum, Z.

29 ADORNATELLA, Er.
inscriptella, Dup.
dilutella, Stt.
♀ *obscura*, Stph.

GYMNANCYLA, Z.

30 CANELLA, S.V.
depositella, Zk.
cinnamomella, Mill.

HETEROGRAPHIS, Rag.

31 OBLITELLA, Z.
undulatella, Clems.
propriella, Walk.

ALISPA, Z.

32 ANGUSTELLA, Hb.
gracilalis, Hb. Cat.

HOMŒOSOMA, Curt.

33 NEBULELLA, S.V.
muscerdalis, Hb. Cat.
v. maritima, Tgstr.
34 NIMBELLA, Z.
nebulella, Dup.
v. saxicola, Vaugh.
v. carlinella, Hein.
35 BINÆVELLA, Hb.
eluviella, Steph.
nebulella, Wood, fig. 1451
petrella, H.-S.
36 CRETACELLA, Rössler
senecionis, Vaugh.
37 SINUELLA, F.
sinuatus, F.
gemina, Hw.
elongella, Hb.
flavella, Dup.

EPHESTIA, Z.

38 CALIDELLA, Guenée
ficella, Dougl.
xanthotricha, Stgr.
39 FICULELLA (Gregson), Barrett
40 CAHIRITELLA, Z.
passulella, Barrett
41 ELUTELLA, Hb.
elutea, Hw.
v. rufa, Hw.
v. angusta, Hw.
42 ROXBURGHII, Gregson
43 SEMIRUFA, Hw.

PLODIA, Guenée

44 INTERPUNCTELLA, Hb.
zeæ, Fitch.

ANERASTINÆ, Rag.

ANERASTIA, Hb., Z.

47 LOTELLA, Hb.
miniosella, Zk.
pulverella, Hb.

GALLERIDÆ.

47 GALLERIA, F.
mellonella, L.
cereana, L.

MELISSOBLAPTES, Z.

48 BIPUNCTANUS, Curt.
anella, Zk.

APHOMIA, Hb., Z.

49 SOCIELLA L.
colonella, L.
tribunella, Hb.

CORCYRA, Rag.

50 CEPHALONICA, Stt.

ACHROEA, Hb., Z.

51 GRISEELLA, F.
alveariella, F.
cinereola, Hb.
alvea, Hw.

I beg to call the attention of Entomologists to the Monograph that I am preparing on the *Phycitidæ* and *Galleridæ* of the whole world. In this Monograph I propose describing about 900 species, of which more than a third are new to science. The work will contain eighteen 8vo plates, including structural details in outline; fourteen plates, giving coloured figures of upwards of 300 mostly new species, are already prepared.

As the publication of this work is very expensive on account of the plates, I shall be glad to hear (by letter or post card) from intending subscribers, and will later on fix the subscription price, reducing it as much as possible to cover at least a part of the expense. I shall form a definite subscription list, when it will be possible for me to mention the price of the work.

I shall be glad to examine and determine any species of *Phycitidæ* and *Galleridæ*, European or exotic.

Paris: *April 16th*, 1885.

ON THE TRUE TYPE OF THE LYCÆNID GENUS *PENTILA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S, &c.

In the "Voyage de Delagorgue," M. Boisduval named a genus *Tingra*, with one species, *T. tropicalis*.

In Doubleday's List of *Lepidoptera*, a MS. name of Boisduval's, *Pentila*, was first published with a MS. species, *P. undularis*.

In the genera of Diurnal *Lepidoptera*, Westwood figured a species under the name of *Pentila Zymna*; but in the text he distinctly stated that *P. undularis* (still undescribed, though well known in collections) was the true type, that he had lettered the plate in error.

Although Hewitson subsequently states that Westwood's description was taken from *Tingra tropicalis*, Westwood himself states in his enumeration of the species of *Pentila*, that it is "an insect which I have not had an opportunity of examining," and although Hewitson may have regarded *T. tropicalis* as "only a variety" of *T. abraxas*, we have no evidence that Westwood made use of the latter alone in the preparation of his diagnosis; indeed, he states (though erroneously) that it is "congenerous with Boisduval's type, *Pentila undularis*," showing that in the preparation of his description both forms were under his eye.

Furthermore, the species figured as *L. Zymna* is referred by Westwood to *Miletus*, and is, in my opinion, a species of Felder's genus *Allotinus*, which (by the way) I cannot separate from *Paragerydus* by means of the characters given in Mr. Distant's "Rhopalocera Malayana," which strike me as merely the same thing in Latin and English.

PARAGERYDUS.

"Its position is readily defined as allied to *Gerydus* and *Logania* by having the third sub-costal nervule of the anterior wings emitted beyond the end of the cell" (Distant).

ALLOTINUS.

"Ramo tertio sat longe pone cellulam emisso." Felder (Distant).

Mr. Distant, however, in his Synopsis of Genera takes upon himself the responsibility of altering this character, because in the only species which he possesses (*vide* p. 208, note) the third nervule is emitted at end of cell; the only species we possess (*A. fallax*) emits the third and fourth sub-costal branches from a long footstalk beyond the cell, and is therefore more likely to be Felder's type than *A. subviolaceus*.

Now, as it would create considerable confusion to accept *Allotinus*

Zymna as type of *Pentila* in opposition to the express declaration of the describer of the genus, as also it would necessitate the description of a new genus to contain *Pentila undularis*, which differs considerably both in neuration and palpi from the other species associated with it, and which belong to the genus *Tingra*, I propose that the suggestion of Mr. Scudder be adhered to, and that *P. undularis*, though not described until some time after the genus founded for its reception, shall be retained as the true type of *Pentila*.

British Museum:
June, 1885.

DESCRIPTION OF A NEW SPECIES OF *CICADIDÆ* FROM BUENOS AYRES.

BY W. L. DISTANT.

PROARNA CAPISTRATA, *n. sp.*

Body above ochraceous; head with two large and contiguous oblique black spots on disc, and with a broad and broken black fascia on vertex between the eyes; eyes dull luteous, spotted with black; pronotum with two small central black spots on anterior margin, and two minute rounded black spots on centre of the anterior border of posterior margin. Mesonotum with two obconical black spots on anterior margin, followed by a central narrow cruciform spot, and with a small black spot in front of each anterior angle of the cruciform elevation, and a large broken and indistinct sub-marginal oblique fascia on each side. Scutellum with a central, transverse, linear black spot. Abdomen above with a central dark fuscous spot on basal segment. Body beneath ochraceous; the face with a central longitudinal black line and the intermediate femora also spotted with black (anterior and posterior legs mutilated). Tegmina pale, hyaline, the costal area and venation ochraceous, excepting the veins dividing the apical areas which are fuscous; a dark fuscous spot at the bases of the three upper apical areas, two small black spots near base of third ulnar area, and the transverse vein at apex of fifth ulnar area also black. Wings pale hyaline, with the venation ochraceous.

Face tumidly convex and with strong transverse striations; rostrum reaching posterior coxæ, and with its apex fuscous; opercula short and broad, inwardly attenuated and obtusely angulated, not quite meeting at centre, and not passing the base of first abdominal segment. Long., 20 mm.; exp. tegm., 50 mm.

Hab.: Buenos Ayres.

Prof. C. Berg, of the Museo Publico at Buenos Ayres, having recently submitted the types of his described species, and also some others, unnamed, for my comparison and identification, I found amongst them the above distinct and apparently undescribed species. Prof. Berg having asked me to describe it, I now accordingly do so, and a coloured figure of the insect will appear in a forthcoming part of Mr. Waterhouse's "Aid," which will also be accompanied with the figures of some of Prof. Berg's recently described species.

Purley: *June 28th*, 1885.

Coleoptera in the Isle of Wight.—During a stay in the Isle of Wight from April 13th to April 27th, I found a few good beetles, which I have not recorded before from the locality. At Ventnor, besides other beetles that have been before mentioned, I took a fair series of *Micralymma brevipenne* crawling in the sun over wet rocks below high-water mark; *Tachyusa sulcata* was more plentiful than I have before seen it at this place, and on one warm evening I took about a hundred specimens of *Ptenidium punctatum*, and might have taken as many more.

On April 20th, which was a warm sunny day, Dr. Sharp and Mr. Gorham came over from Southampton, and we had an afternoon's collecting at Luccombe Chine; our object was to get *Chlænius Schrankii*, but although it seemed likely weather for it, we found that the exact locality had been ruined by cultivation. We obtained, however, several good insects from cut reeds and rubbish and the damp ground beneath; the best, perhaps, were *Drypta* and *Stenolophus flavicollis*, of each of which we took about nine specimens; we also found *Chlænius vestitus*, a rather dark variety of *Leistus fulvibarbis*, *Pæderus fuscipes*, *Tachyporus formosus*, *Lathrobium angustatum*, *Philonthus umbratilis*, *Bythinus Curtisii*, *Corylophus sublævipennis*, *Agathidium lævigatum*, *Atomaria berolinensis*, *Myllæna brevicornis*, and another species of *Myllæna* not yet determined. On the side of the cliff and in sandy places below, three species of *Bledius* occurred, *B. opacus*, *B. longulus*, and *B. atricapillus*. In and near the mud and sand in some damp places we found *Heterocerus lævigatus* and *fusculus*, *Philonthus signaticornis*, *Platystethus nodifrons*, *Mycetoporus splendidus*, *Sunius intermedius*, *Dyschirius æneus*, *Tachys bistriatus*, and a small variety of *Bembidium quadriguttatum*, which we at first hoped might be *B. quadripustulatum*, as it seemed to resemble that insect in size; on some damp ground near the side of a drain I found a single specimen of *Limnichus pygmæus*. At the top of the Chine, by putting grass into a nest of *Formica fuliginosa* and examining it two or three days afterwards, I secured a fair series of *Myrmedonia laticollis*.

On April 21st we tried Black Gang Chine, but found nothing. Dr. Sharp and Mr. Gorham then went on to Freshwater and Yarmouth, while I returned to Ventnor; on the way they took *Badister peltatus*, which has not before, I believe, been recorded from the Island, *Drypta* (one specimen), *Stenolophus Skrimshiranus*, *Bembidium assimile*, *Limnichus pygmæus*, and a variety of *Lathrobium terminatum*, with the usual yellowish spots at the apex of the elytra wanting. Near Ventnor, Dr. Sharp took a single specimen of *Adelosia* (*Pterostichus*) *picimana*.

Bees were fairly plentiful, but appeared to belong to but few species; *Andrena fulvicrus* was very abundant on the sides of the cliffs near Sandown. I found a few *Hemiptera*, the only one that I have not observed before being *Piesma quadrata*, which was abundant at the roots of plants near the shore.—W. W. Fowler, Lincoln: *May 16th*, 1885.

Agapanthia lineatocollis, Don., near Lincoln.—On the afternoon of Thursday, June 11th, I found *Agapanthia lineatocollis* in some numbers at Langworth Wood, near Lincoln, on a small bed of *Heracleum sphondylium* (cow parsnip) at the side of a drive; the plants showed no sign of flower, but the beetles were basking in the sun on the leaves. There were a few thistles among the plants, but from these I only took two or three specimens. *Agapanthia lineatocollis* stridulates very distinctly; the peduncle of the elytra is quite smooth in the centre, but is marked with striæ on each side; these rub against corresponding striæ on the interior base of the prothorax, and so the noise is produced. I thought, at first, that the head might have something to do with the sound, as in some species of *Languria*; but, on removing the head from a dead specimen, I found that I could produce the noise by moving the thorax up and down. This beetle, when handled, gives out a rather strong smell, which I can only compare to the suffocating smell produced by certain kind of candles when blown out and allowed to smoulder.—ID.: *July 15th*, 1885.

Acidota cruentata, Mann., at Chiswick.—I took, some little time ago, at Bedford Park, Chiswick, a little beetle which was unknown to me. I sent it to Mr. E. Saunders, and he informs me that it is the above. Has this species been found elsewhere in the west Metropolitan district?—T. D. A. COCKERELL, 51, Woodstock Road, Bedford Park: *July 7th*, 1885.

Ægialia rufa, Fab.—I had the good fortune to capture four specimens of this scarce beetle yesterday (June 2nd) on the Wallasey Sandhills. This species was first recorded as British from the same locality by Mr. Frank Archer, of Liverpool, in 1862, since which time only two specimens have been taken that I am aware of, and those by Mr. Wilding last June. One of the specimens taken yesterday I caught flying (it looked like a *Coccinella*), and the remaining three I found dead, killed by the intensely hot sun.—J. W. ELLIS, 101, Everton Road, Liverpool: *June 3rd*, 1885.

Note on Scolytus pruni, Ratz., and some attendants.—The old apple-tree which I mentioned on a former occasion (Ent. Mo. Mag., xix, p. 118) as being afflicted by *Schizoneura lanigera* and *Mytilaspis pomorum* maintained its vitality against the annually renewed attacks of its insect-foes, yet with decreasing energy, until last year; then the one side that remained alive put forth leaves, but this was the expiring effort; misfortunes had reached a climax, and now the tree is dead. The chief cause of decease, I do not doubt, was a radical malady which had induced in the structure of the tree conditions favourable to the existence of its insect enemies. And there were more than I have yet mentioned, for on the 21st ult., on stripping off the bark still covered with the scales of *Mytilaspis* and all hanging loose on the trunk, but containing nothing alive, I found the tree, on the side that was living last year, transversely scored with long, frass-filled, characteristic galleries of larvæ of a *Scolytus*, which may be taken as their hieroglyphic memorial of the accumulated ills of the tree, inscribed as an epitaph—*De mortuis nil nisi malum*. I secured some six or seven of the beetles just perfected, which were still each in the frass-closed *cul-de-sac* its larva had formed in the hard wood at the end of its gallery. The beetles were in every case in a reverse position to that of the engineering larva, being head forwards ready to come out, but not being willing to emerge for my pleasure, I had to cut them out; one flew away immediately, and I lost one or two others. Each cell was horizontal, and just a little longer and wider than the beetle, and the orifice was perfectly circular. The *Scolytus* proved to be *S. pruni*, Ratz., a species first recorded as British by E. W. Janson (Ent. Ann., 1862, p. 116), who found it under the bark of a dead apple-tree, near Highgate; and it is still scarce with us, probably not really rare, only it is not every beetle-hunter that gets access to a dead apple-tree in June. The species is common in Germany in plum-trees. In some of the cells the original beetle-tenant lay dead, others were empty, and one was occupied by a living sub-tenant, which, on being turned out of possession, was proved by its known predilections to have been boarded and lodged, if not at the expense of the founder of the dwelling, yet to have appropriated the residence of another: it was identified as *Chrysis cyanea*, Linn., certified to be a parasite of *Chelostoma florisomne* and other bees, also of *Trypoxylon figulus*. Two other *asciti* were detected in the act of prying suspiciously into the neighbouring cells, and having been apprehended and brought up for judgment, have been recognised as *Trypoxylon figulus*, Linn., and *Crabro dimidiatus*, Fab., old offenders in carnivorous rapine, and they have been condemned to death and executed accordingly. *T. figulus* stores up spiders for its young; in the present case this had been done in *Scolytus*-cells, and by the action of *Nemesis*, it would in its turn be the prey of *Chrysis*. *Crabro*, I presume, was seeking what he might devour. On the 3rd inst., I dug out of closed *Scolytus*-cells another example of the *Chrysis*, two of *Trypoxylon figulus*, two of *T. clavicerum*, and one of *Prosopis communis*, all immersed, and only now for the first time at liberty. F. Smith states (Trans. Ent. Soc., N. S., iv, proceed., p. 77) that *Trypoxylon* adopts the burrows of other insects, or other ready-formed receptacles suitable to its purpose, that is, storing up spiders as nutriment for its young. The *Prosopis* usually burrows in bramble-stems, but in this abnormal case probably a ready-made excavation was adopted and adapted by the parent. On the 6th inst., I cut out of its cell another *Trypoxylon clavicerum*, and I saw several others of the species, and one of *T. figulus* going in and out of the vacated holes: one *Chrysis cyanea* was also similarly engaged. I could, however, find no more *Scolytus pruni*; and although I expected to get *S. rugulosus* in its usual habitat in the branches of the tree, I was disappointed.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *July 7th*, 1885.

Description of the larva of Hadena satura.—Head, face and true legs corneous, brown; spiracle line dull yellow-green, as well as all the parts beneath it, the line itself very dimly marked below by being slightly yellower than the rest; back and sides pink, rather darker at the centre of the back, growing almost into a brown-pink along the centre of the dorsal region; this pink portion of the body is indistinctly dusted with brown, the last segment with the anal prolegs is faintly green, and the last spiracle is blackish; the dorsal line is faintly indicated by a row of very indistinct spots, one at the commencement of each segment of a dusky pink, and the sub-dorsal by a row of sloping lines, from above backwards and downwards, so that in a strong light there is a faint lozenge-shaped pattern along the back. The shape is very clumsy and cylindrical, with very little difference from the head to the tail, except at the last segment.

Having had eggs of this species sent me from Germany, I have penned the above description from a full-fed larva; one of my forwardest larvæ has to-day buried itself in the earth. I fed them on hop.—R. C. R. Jordan, 105, Harborne Road, Edgbaston: *August* 13*th*, 1884.

P.S.—I am now able to announce that a fine *Hadena satura* appeared to-day from the larva above described. I never before saw the insect alive, save on one occasion, on a poplar tree at Heidelberg.—R. C. R. J.: *June* 5*th*, 1885.

What is the true Chrysophanus Hippothoë of Linneus?—In the Fauna Suecica, p. 274, Linneus first described a *Chrysophanus* under this name; concerning which (as with other *Lycænidæ*) an unnecessary amount of fuss and confusion has been made. Both in Staudinger's and in Kirby's Catalogues the Linnean species is identified with *C. Chryseis*, a brilliantly purple-shot species with the under-surface of its wings almost wholly of a dust-brown colour, a species which no more fits the Linnean description than does the male of *C. Hipponoë*, or any other purple-shot species.

The following is the Linnean description:—

"Statura P. virgaureæ. *Alæ supra* omnino fulvæ immaculatæ: *Subtus* luteo cinerascentes. *Primores subtus:* punctis nigris iride alba: tribus majoribus intra marginem exteriorem; septem minoribus fere transversim positis; sex minutissimis ad marginem posticum. *Secundariæ subtus* cinerascentes punctis ocellaribus circiter septemdecim præter fasciam ad marginem posticum fulvam, antice nigro-punctatam."

Now in the above description there are certain sentences which prove it to be intended for the *C. rutilus* of Werneburg, and not for *C. Chryseis;* these are the following:—

1. "Wings above entirely fulvous;" the next word, "unspotted," will not strictly apply to anything but *C. virgaureæ*, which is certainly not the Linnean *C. Hippothoë*.

2. "Front wings below with black spots with white iris" applies well to *C. dispar*, and its smaller variety, *C. rutilus*, but not at all well to *C. Chryseis*, in which the irides are by no means white.

3. "Hind-wings below ash-coloured," applies only to *C. dispar*, and its small variety.

4. "Spots ocelloid, except the fulvous band at hind-margin, which is spotted with black in front;" this applies only to *C. dispar* and its small variety, for in *C. Chryseis* there is no band, only a series of orange spots with semi-ocelloid spots both in front and behind, a character not so noticeable in *C. dispar*.

I conclude, therefore, that Messrs. Staudinger, Kirby, and others are entirely wrong in their identification of the Linnean species, and that our old British identification, corresponding with that of Hübner and Godart, is correct.—A. G. Butler, British Museum: *July* 1*st*, 1885.

On the occurrence in Britain of Ornix fagivora and Nepticula Nylandriella, two species probably new to our Fauna.—While collecting larvæ of *S. Weirana* on beech-trees near Cambridge last autumn, I came across three *Ornix* larvæ, all of which duly emerged this spring. Mr. Stainton informs me that they are the above species, which is recognisable by the fuscous colour of the hind-margin. *O.*

devoniella, which appears to be still unique, differs from this species in having the whole fore-wing fuscous; but the German Entomologists doubt whether it is truly distinct.

While fishing in Sutherlandshire this year in May, I came across a *Nepticula*, which Mr. Warren pronounces to be the *Nylandriella* of Tengström. It occurred in some numbers on the trunks of mountain ash trees in one wood, and may probably turn out to be more generally distributed. It is a very minute species, measuring from 1⅓‴ to 2⅓‴ across. The following description from Heinemann, given me by Mr. Warren, is so good that I cannot do better than copy it.

"Fore-wing narrow, ashy-bronze, shining: head yellowish: frontal tuft of ♂ brown, of ♀ pale ochreous: antennæ short, whitish-grey: eye-caps silvery-white: fore-wing *very smooth* as though polished, pale silvery-grey, with a faint yellowish tinge: apex scarcely darker, with a faint violet gloss: cilia whitish-grey, rather darker towards their base."

The only point which seems to need correction is that the head appears to be only sometimes yellowish, and that more frequently in the females. The males usually have heads the same colour as the fore-wings.—A. F. GRIFFITH, Sandridge, St. Albans: *June 29th*, 1885.

P.S.—Since writing the above, Mr. Warren has informed me that *Nylandriella* (Tng.) and *aucupariæ* (Frey) may possibly prove to be identical. If so, Frey's description ("very like *viscariella*") would appear to be entirely misleading, unless the species (with me very uniform) in other localities shows considerable variation.

On the occurrence of Trifurcula pallidella near St. Albans, Herts.—While collecting *Dichrorampha acuminatana* near here in 1883, I took two specimens of this species running up grass-stems in a piece of waste ground covered with mixed herbage. I was unable to identify it until the day of Mr. Harper's sale, when Mr. Warren, on seeing one of them, immediately guessed the species; and Mr. Hodgkinson, who happened also to be in the sale-room, confirmed his surmise. He informs me that with the exception of the one specimen he took near Preston, the insect has hitherto only been met with near Vienna. One of my specimens is a very fine one, the other but poor. The species, which measures about 4‴ across, is unicolorous, nearly white; and may be immediately recognised by its very rough head. I have twice been to the same spot since, but have been unable to find any other specimens.—ID.

On the larvæ of Coccyx tædana and Euchromia flammeana and arbutana.—I met with the larva of *tædana* somewhat commonly on *Arctostaphylos uva-ursi* this May in Sutherlandshire. It mines the leaves, and as soon as it has finished one it eats a round hole through the skin, fixes another leaf to it, eats its way into it and clears that out, passing on to another when necessary. It turns to a pale yellow pupa in one of the hollowed-out leaves. The larva is pale yellowish, very transparent, with dark head, and appears to be very subject to ichneumons. I have also bred a *flammeana* and several *arbutana* from the same food-plant; the larva of the latter is slightly hairy, blackish, and spins together the terminal leaves of the shoots much in the same way as *dimidiana* does on *Myrica gale*.—ID.

Note on a new food plant of Coleophora lineolea.—This species now swarms here on *Stachys lanata*, flying at dusk. In former years I have seen one now and then; this year there are many hundreds, the colony, after the manner of migrants, having increased and multiplied exceedingly. I had not observed the larva-cases in the spring, and now the radical leaves of the plant, on which the larvæ would have fed, having decayed, I cannot find any. There is no *Ballota nigra* nor *Stachys sylvatica* near, so I cannot track their course from their usual food. Like other pilgrims their beginning, after leaving their natural camping ground, was probably small; like other restless Britons they have acquired a change and something foreign; and, unlike some of the said Britons, they have prospered. *S. lanata* was imported from Siberia and naturalized in gardens here a century ago.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *July 10th*, 1885.

Coleophora vibicigerella bred.—The cases mentioned in my former note (vol. xxi, p. 206, Ent. Mo. Mag.) I am pleased to say produced the above-named species; the first specimen emerged June 27th, two more on the 30th, and one in about every three or four days since, so that up to the present time I have bred seven; and as their emergence seems to take place at such long intervals, I still hope to breed more. It is very satisfactory even so far, that I have been able to get them through the winter, for most of the hibernating *Coleophoræ* are very difficult to rear, especially in London, which I think must be in consequence of the impurities of the atmosphere during the winter, particularly if we get a few of the real London fogs.

I am sorry to say the other cases mentioned in my former note have quite disappeared, owing to the destructive propensities of the cats hereabouts, in tearing the gauze off the top of the cage, and which, by its appearance, must have been off some days before I observed the loss, so that all my larvæ had crawled away; but I hope next year, with a little more care, to be able to give some account of this species also.—Geo. Elisha, Shepherdess Walk, City Road: *July 14th*, 1885.

Lepidostoma hirtum bred.—*L. hirtum* has come out of a *quadrangular* case to-day, so there appear to be three makers of such cases, viz., *Brachycentrus*, *Crunœcia irrorata*, and *L. hirtum.*—Kenneth J. Morton, Carluke, N. B.: *July 11th*, 1885.

Note on the genus Achorotile, Fieb.—The genus *Achorotile*, which is characterized (*inter alia*) by having two sub-parallel middle keels on the face, and the channels between them and the side keels tuberculate, comprises, according to the 2nd Edition of Dr. Puton's Catalogue of European *Hemiptera*, three species, which may be tabulated as follows:—

1 (2). Dirty yellowish-white, with a dark brown stripe reaching the entire length of each side, and a broad dark brown band across the face between the eyes. *bivittata*, Boh.

2 (1). Face without a dark band.

3 (4). Black or blackish, a wide stripe down the crown; pronotum and scutellum, and the hind margins of the first two dorsal segments of the abdomen,

widely whitish-yellow. Frons one-half longer than wide, its central keels equidistant from the side keels and each other. Central keel of the clypeus abbreviated at the base .... *albosignata*, Dahl.

4 (3). Lurid-fuscous, a wide stripe down the crown; pronotum and scutellum paler, the first three dorsal segments of the abdomen widely whitish-yellow in the middle; antennæ black, clypeus and legs blackish. Frons two-thirds longer than wide, its central keels much approximated. Clypeus without any central keel (brachypterous, ♀) .... *longicornis*, Sahlb.

A. albosignata, which appears to be a species well-known on the continent, is (Ent. Mo. Mag., vii, 196) recorded as British on the strength of six pupæ, presumably because they presented the facial characters assigned to this genus. In order, however, to substantiate the claim of this species to a place in our British list, it is desirable that some evidence should be adduced to show that the nymphs (or pupæ) in question really pertain to the genus *Achorotile* at all, for it is certain that the nymphs of *Liburnia unicolor*, *L. forcipata*, and *Stiroma pteridis* display the facial characters of adult *Achorotile*. Amongst some hundreds of *Delphacid* nymphs from widely different localities, which I have collected continuously since last August, not one has occurred which does not present the *Achorotile*-face, but in most instances I am unable to refer the nymph to its adult form.

Under these circumstances, the question arises, what is *A. bivittata*, Boh.? for, notwithstanding the contrary opinion of Boheman and Stål, recent authors seem agreed that it is some *Delphacid* in the nymph state, although there is some diversity of opinion as to which of the known species it should be attached. It is pretty clearly the insect which the Rev. T. A. Marshall had in view when writing of the larva of *Liburnia neglecta* (Ent. Mo. Mag., i, 274), and Dr. J. Sahlberg (Not. Fenn., xii, 413) considers that it is the larva of *Liburnia notula*, while Fieber, who writes (Les Cicadines d'Europe, part iv, 89) as if he had examined the original, thought it was the ♀ nymph of *A. albosignata*. It is probable, however, that the opinion of the Rev. T. A. Marshall is very near the truth, for, according to my local experience, *A. bivittata* occurs in company with *Liburnia brevipennis*, Boh., = *hyalinipennis*, Stål (a species not recognised by him, and very closely allied to *neglecta*). Just at the time the latter is reaching maturity, in a woodland locality far too dry for *Lib. notula*, I have taken both *A. bivittata* and *L. brevipennis* at roots of coarse grass, in one locality near here from the 20th August to 14th October, after which date they had apparently almost all gone down for hibernation, for although I have since taken one or two stragglers of *Lib. brevipennis*, my repeated efforts to meet with *A. bivittata* also have hitherto been unavailing.

It would seem from the premises that it is premature to regard the genus *Achorotile* as British until we are in possession of native examples in the adult state.—J. EDWARDS, 131, Rupert Street, Norwich: *June 29th*, 1885.

Plusia chrysitis with supposed fungoid growths on the head.—I send you a specimen of *Plusia chrysitis* with its eyes injured by a fungus; kindly inform me, through the Ent. Mo. Mag., of the name of the fungus.—C. DONOVAN, Jun., Westview, Glandore, Leap, Co. Cork: *July 3rd*, 1885.

[We have communicated privately with our correspondent, but as the error into which he has fallen is one of frequent occurrence, we reproduce the substance of our remarks. The objects attached to the head of the *Plusia* are not fungi, but are the pollen-masses (*Pollinia*) of some wild Orchid, and it is by means such as this that these plants are cross-fertilized. In this particular instance there are two pollen-masses, one attached to one of the eyes (and "growing out of it," as it were), the other grasped in the coiled-up haustellum.—EDS.]

ENTOMOLOGICAL SOCIETY OF LONDON.—*June 3rd*, 1885: R. McLACHLAN, Esq., F.R.S., President, in the Chair.

Messrs. R. A. Adkin, of Lingards Road, Lewisham, and G. T. Baker, of Edgbaston, Birmingham, were elected Members.

Mr. Pascoe exhibited coloured drawings of curious elongate swellings on the roots of an exotic Orchidaceous plant, showing remarkable resemblance to caterpillars; also a new genus and species of *Colydiidæ*, remarkable for having erect scales on the eyes, he proposed to name it *Optus bicarinatus*.

Mr. Douglas sent for exhibition a small piece of bark of an old apple tree, crowded with scales of *Mytilaspis pomorum*, lying on and over each other. He remarked that the tree had been healthy until about five years ago, but had since gradually faded, and was now dead; the unhealthy condition was coincident with the appearance of the *Mytilaspis* and of *Schizoneura lanigera*. The President remarked that this was one of those cases in which it was difficult to decide whether the insects were there because the tree was unhealthy, and or were the cause of the latter condition. It was difficult to imagine what nutriment the *Mytilaspis* could obtain from the outer layer of bark, which, even in healthy old apple trees, was practically dead.

Mr. Porritt exhibited living larvæ of *Phycis betulæ*, and a series of *Coleophora currucipennella* bred from birch.

Mr. Coverdale exhibited specimens of *Coleophora paludicola*, Stainton, described in this Magazine, *ante* p. 9, and remarked that it appeared to him very similar to *C. adjunctella*, Hodgkinson, Ent. Mo. Mag., xviii, p. 189.

The President exhibited the example of *Deiopeia pulchella*, caught in the Atlantic Ocean, noticed at *ante*, p. 12.

Mr. Enock read the concluding portion of his paper on *Atypus piceus*, and exhibited specimens and drawings. In this he specially detailed the habits of the ♀ spider. A noticeable feature appeared to be that in order to obtain food a rent was made in the aerial portion of the tube when an insect was felt to be outside, by means of the spider's falces, the insect was then drawn into the tube through the rent, which was instantly repaired. The paper gave rise to considerable discussion, in which several Members joined.

THE *NITIDULIDÆ* OF GREAT BRITAIN.

BY REV. W. W. FOWLER, M.A., F.L.S.

(*Continued from p.* 36).

b. Forehead emarginate; male with anterior tarsi not strongly dilated.

α. Male with a small transverse keel on the last abdominal segment.

M. erythropus, Gyll. (*carinulatus*, Forster).—A small species, variable in size; rather long oval, leaden-black; punctuation thick and fine; pubescence grey, fine and rather dense; antennæ brown-red, sometimes rather dark, sometimes quite light; upper surface with distinct cross reticulation between punctures; forehead emarginate; anterior tibiæ armed with two short prominent teeth separated by smaller teeth. Length, $\frac{1}{2}$—$\frac{4}{5}$ lin.

Local; according to M. Brisout it occurs on *Papilionaceæ.* I have taken it in abundance in Langworth Wood, near Lincoln, on *Potentilla Tormentilla*, and sparingly on strawberry flowers in my garden; Repton, St. Leonard's, Hastings, Shiere, Guildford, Highgate, Darenth, Chatham, Shirley, Mickleham, Chat Moss; Eastry and Bearstead (Kent) on *Helianthemum vulgare*, Mr. Gorham; Castle Mill, near Manchester, on *Galeobdolon luteum*, Mr. Chappell; Instow (N. Devon), &c.

This species is very often confused with the preceding, but may be easily distinguished by its smaller and more oval form, emarginate forehead, lighter antennæ, and the keel on the abdominal segment of male; it is variable both as regards size and shape. Among the late Mr. Rye's and Dr. Power's series are some remarkably small specimens, the smallest examples of the genus that I have yet seen; the shape of the thorax also varies, the sides in some specimens being much more dilated and rounded than in others.

β. Male with a very strong transverse keel on the last abdominal segment, divided by a broad semicircular excision into two divisions, each ending in a strong sharp tooth.

M. bidentatus, Bris.—Oval, rather broad and convex; leaden-black, with ashy pubescence; legs blackish, with anterior tibiæ ferruginous; anterior tibiæ with two short prominent teeth separated by two or more smaller teeth; very like *M. erythropus*, but separated by its broader and more convex form, rather closer punctuation, thicker tibiæ, and the denticulation of the last abdominal segment of male. Length, $\frac{5}{6}$—1 lin.

This species was introduced as British on two specimens in Mr. Crotch's collection; these I have not seen, and cannot say whether either of them was a male: the other two British specimens I have before me, one taken by the late Mr. Rye, and the other at Caterham by Mr. Champion; both of these are females, and there is exceedingly little difference, if any, to be seen between them and larger specimens of *M. erythropus*, the punctuation, &c., being almost identical. For some time, in common with other Entomologists who had not seen a male specimen, I felt some doubt as to the specific value of *M. bidentatus*, as the keel on the last abdominal segment of the male seems occasionally to be divided in some species in which it is usually whole (*e. g.* in *M. lugubris*) ; a short while ago, however, M. Brisout, with his usual kindness, sent me a pair, and a cursory examination of the extraordinary male characters at once proved it to be a very distinct species. These are best described in M. Brisout's own words (*l. c.*, p. 27) : "Mâle—dernier segment abdominal, à son extrémité, avec une carène lisse, énorme, dirigée un peu obliquement en dessous, et profondément échancré en arc à son sommet, de manière à faire deux énormes dents triangulaires." The species occurs on *Lotus*.

It would appear, on the whole, that, although this insect is probably British, yet more confirmation is required before it is added finally to our lists; if collectors of the group would carefully examine all their supposed specimens of *M. erythropus*, it might soon be authenticated beyond doubt.

C. Upper surface shining black, with very slight traces of cross striation ; anterior tibiæ with three short outstanding teeth, separated from one another by one or two smaller teeth ; legs dark, anterior tibiæ occasionally lighter.

***M. exilis*, Sturm.—Ovate, rather convex, shining black ; punctuation close ; pubescence very fine ; antennæ dark brown with black club ; forehead emarginate, with a very small tooth in the centre of the emargination ; legs very dark, black or almost black ; anterior tibiæ with three short outstanding teeth, one above and one below the middle, and a third at apex, separated by smaller teeth. Male with a small curved keel on the apex of the last abdominal segment. Length, ⅔—¾ lin.**

Rare. Mr. Waterhouse once took a specimen in the courtyard of the British Museum ; Galloway, Dr. Sharp ; Isle of Man, Rev. R. P. Murray ; Barmouth on *Thrincia hirta* (Lesser Hawkbit), Mr. Wollaston ; Whitsand Bay, Cornwall, Mr. J. J. Walker : the largest number of specimens, however, that has occurred to any one collector was taken by Mr. Mason two or three years ago on *Echium vulgare* on Braunton Burrows, near Instow, N. Devon. According to M. Brisout it is found on *Papilionaceæ*. It is one of our smallest and most distinct species.

II. Tarsal claws toothed at base.

i. Thorax and elytra rather coarsely punctured ; upper surface shining, usually with a red spot on each elytron ; anterior tarsi of male not dilated ; interstices smooth.

M. brevis, Sturm.—Short, rather broad; antennæ red, club sometimes rather darker; legs red, sometimes quite light, sometimes darker; forehead strongly emarginate; thorax transverse, strongly rounded in front, broader at base than base of elytra, with strong punctuation; elytra unicolorous, not so strongly punctured as thorax; anterior tibiæ armed with regular distinct teeth for at least two-thirds from apex, the centre ones being usually the most prominent. Length, ⅝—1 lin.

var. mutabilis, Rosenh.—Rather larger; elytra with a red spot on each, variable in extent; this is the *M. pictus* of Rye. Length, 1—1⅛ lin.

On *Helianthemum vulgare*, Scarborough. The type form is rare; out of a series of nearly forty examples that I have before me, only one or two show no trace of a spot; one of these, a small specimen in Dr. Power's collection, is a good example of the type form. The species is said also to be found on flowers of *Centaurea calcitrapa* (the Star Thistle), a plant which is found occasionally in some of the southern counties of England, but is uncommon.

ii. Thorax and elytra finely punctured; body dull unicolorous; anterior tarsi of male strongly dilated; interstices with plain cross striation.

M. solidus, Kugel.—In size and shape very like *M. umbrosus*, but of a deeper black colour, and more convex; antennæ black, with basal joints reddish; legs brownish, anterior tibiæ with three or four strong serrate or pectinate teeth at apex; forehead strongly emarginate.

Local, but not uncommon. On *Genista* and *Lotus*, according to M. Brisout; it seems usually to occur in Britain on *Helianthemum vulgare*; Darenth, Birch Wood, Esher, Mickleham, Chatham, Bearsted, Shiere, &c.

CYCHRAMINA.

The species of this tribe are chiefly distinguished from the preceding by the fact that the thorax covers the base of the elytra instead of simply fitting closely to it; the elytra cover nearly the whole of the abdomen, only part of the pygdium being exposed; the prosternum is more or less prolonged at the apex; all the species are round or oval and convex. The tribe comprises several genera, but only one is British.

CYCHRAMUS, *Kugelann*.

This genus contains two species, which may easily be distinguished by the wide thorax (which overlaps but does not fit the base of the elytra), prominent eyes, loose dark three-jointed club of antennæ, simple tibiæ, and almost semicircular mentum.

C. luteus, Fab.—Of a uniform testaceous colour, clothed with thick and fine pubescence; punctuation close and fine. Length, 1¼—2 lin.

In abundance in spring in hawthorn blossom.

C. fungicola, Heer.—Of a somewhat light ferruginous colour, with a darker shade on each side of the elytra, which is more or less ill defined, and sometimes disappears altogether; pubescence longer and more scanty and punctuation more diffuse and stronger than in *C. luteus*; it is also slightly longer in form, and rather more convex and shining than the latter species. Length, 1¼—2 lin.

Common in fungi, especially in autumn.

These species are sometimes rather confusing; but, apart from other distinctions, the difference of habitat will allow of their determination.

IPINA.

As we approach the end of the *Nitidulidæ* we come upon certain tribes whose position seems somewhat doubtful, but which afford an easy means of transition from one family to the next; such tribes are the *Ipina* and *Rhizophagina*, which lead into the *Trogositidæ*. Of the *Ipina* we possess three genera—*Cryptarcha*, *Ips*, and *Pityophagus*; the latter of these has usually been classed with *Ips*, but is now rightly separated from it. Some authors insert the *Cybocephalina* between the *Cychramina* and *Ipina*, but the four-jointed tarsi and contractile body of *Cybocephalus* point to a very different position.

The *Ipina* are characterized by having the labrum hidden, instead of free and visible, as in the preceding families; the antennæ are eleven-jointed, with a somewhat loose three-jointed club; the prosternum is strongly produced, more so in *Cryptarcha* than in *Ips*; the mentum is very narrow, usually oblong or trapezoidal; the mandibles in *Ips*, especially in some exotic species (*e. g.*, *Ips Japonica*), are very large and strong; in *Cryptarcha* they are slender and sickle shaped; the labial palpi are short in *Cryptarcha*, longer and less stout in *Ips*; the maxillary palpi are somewhat slender; the membranous paraglossæ in *Ips* are very conspicuous.

The British genera may be thus divided:—

I. Anterior coxal cavities open behind.

1. Thorax overlapping base of elytra; elytra entirely covering abdomen; body oval, upper surface pubescent ....CRYPTARCHA.

2. Thorax not overlapping base of elytra; pygidium exposed; body elongate, upper surface glabrous ....IPS.

II. Anterior coxal cavities narrowly closed behind; other characters as in *Ips*... PITYOPHAGUS.

CRYPTARCHA, *Shuckard.*

Our British species of *Cryptarcha* are very distinct; this is not, however, the case with some of the exotic species (*e.g.*, *C. camptodoides* and *C. thalycroides*), which, as their names imply, bear a very close superficial resemblance to other divisions of the *Nitidulidæ.*

1. Length, 2¾—3 lin. Broad oval; thorax dark, except extreme margins of sides; club of antennæ dark.

C. strigata, Fabr.—Rather convex; prevailing colour dark; mouth, side margins of thorax, and two irregularly formed but constant bands on elytra, yellow or red-yellow; antennæ (except club) and legs reddish.

At sap and under bark, very often in connection with the burrows of *Cossus ligniperda.* Dunham Park, Manchester, Westerham, Richmond Park, Coombe Wood, New Forest, Southampton; Barmouth in fungi. I have taken it by sweeping in Bretby Wood, near Repton.

2. Length, 1—1½ lin. Long oval; thorax with margins broadly testaceous; antennæ entirely red-brown.

C. imperialis, Fabr.—Of a longer form, and not so convex as the preceding species; prevailing colour reddish-testaceous; disc of thorax, and two or three very irregular bands on elytra, dark; antennæ and legs red-brown; it also differs from *C. strigata* in having the free outstanding bristles on the sides of the elytra more prominent.

Taken under the same conditions as the preceding, but much rarer. Dunham Park, New Forest, Southampton, &c.

IPS, *Fabricius.*

1. Body oblong, more or less convex; forehead smooth between antennæ.

a. Each elytron with two yellow spots, the one at base formed of three confluent spots, the other behind middle formed of two confluent spots, which are occasionally separated.

I. quadriguttata, Fabr.—Black, except spots on elytra; rather finely and somewhat diffusely punctured; antennæ reddish or pitchy, club black; apex of elytra entirely rounded in males, pointed at suture in females; the elytra show very weak traces of longitudinal striæ; occasionally the spots on the elytra are all divided. This variety is the *Nitidula 10-guttata*, Oliv. Length, 1½—2½ lin.

Not uncommon under bark, and at sap, especially of oak trees. Ripon, Manchester, New Forest, Dean Forest, and many other localities.

b. Each elytron with two simple round or oval reddish spots.

I. quadripunctata, Herbst.—Larger, more convex, and considerably more strongly punctured than the preceding; the apex of the elytra is entirely rounded in both sexes; in the males, as a rule, the head is large, and the thorax somewhat broader than the elytra, and so the whole body appears to be gradually narrowed from the front to the apex of the elytra; the shape and colour of the spots alone serve to at once distinguish the species. Length, 2—3 lin.

Under bark, and at sap of fir, oak, birch, &c.; under oak chips where the trees have been recently cut down, near Manchester; Weybridge, Caterham, Walton-on-Thames, Mickleham, New Forest; Chat Moss in fungi.

2. Body elongate, flat, parallel-sided; forehead with furrows between antennæ.

I. quadripustulata, Linn.—Black; each elytron with two orange-red spots, the one at apex irregular, the other behind middle simple, round or nearly round; punctuation diffuse, finer on thorax than on elytra; elytra with traces of striæ; apex of elytra rounded in males, produced in females. Length, 1½—3½ lin.

Under bark of various trees; taken commonly in Scotland at sap of firs at Aviemore, Rannoch, Braemar, Falkirk, Alvie, Forres, &c., by Charles Turner, Mr. Champion, Dr. Sharp, and others; it is, however, not confined to Scotland, as it has been recorded from Leicester, Windsor, Hertford, and other places in England. It is a very variable species as regards size.

PITYOPHAGUS, *Shuckard.*

P. ferrugineus, Fabr.—Body long, cylindrical, entirely ferruginous, head rather darker; thorax longer than broad, thickly and strongly punctured; elytra rather thickly punctured, with punctures almost arranged in rows, apices truncate; apical portion of elytra occasionally dark pitchy. Length, 2—2½ lin.

Under bark of firs, and at sap of freshly cut fir; often found in saw pits; not uncommon where it occurs, but very local. New Forest, Shirley, Esher, Braemar, Aviemore, Rannoch, Mr. Champion; Bournemouth, plentiful, Mr. Kemp Welch; Weybridge, Woking, Northumberland, Dr. Power; on fir logs, Forres.

RHIZOPHAGINA.

The position of this tribe is one of considerable difficulty, and the best way to deal with it would be to raise it to the position of a Family. At present it does not agree with the *Nitidulidæ*, by reason of the heteromerous tarsi of the male, nor with the *Trogositidæ*, because its members have the fourth joint of the tarsi the smallest, whereas the *Trogositidæ* have the first joint the smallest. The club of the antennæ presents a great point of difference; the antennæ of *Rhizophagus* are usually spoken of as ten-jointed, with a solid club; the club, however, to all appearance, is not solid, but at its extremity appear one or two ridges, which are considered by Erichson and others to represent, in part at all events, the obsolete eleventh joint. Thomson says with regard to this (Skandinaviens Coleoptera, i, 66)—"*Antennæ clavâ haud compressâ, ad speciem 2-articulatâ, articulo ultimo ovato.*" Dr. Horn (Classification of the Coleoptera of North America, p. 149) says—"Antennæ *ten*-jointed, club two-jointed;" in this point, however, he cannot be right, for the nine joints of the antennæ before the club are very plain. Since drawing up the table in vol. xxi, p. 56, in which I said of the *Rhizophagina*—"Antennæ 11-jointed, club 2-jointed, the 11th joint wholly or partially enclosed within the 10th," I have soaked a specimen for a long time in caustic potash, and then mounted it in Canada balsam; the sutures of all the other joints came out very plainly, but there is no real suture visible in the club, which is evidently formed of a single joint, however far we may regard the ridges as representing the obsolete eleventh joint of the antennæ, and the second of the club.

RHIZOPHAGUS, *Herbst.*

The species of *Rhizophagus* in many instances bear a very close resemblance to one another, and there is considerable difficulty in distinguishing them from descriptions; there are seventeen species in the European list, of which we possess ten; they are found under bark of decaying or dead trees at all times of the year, but especially in the spring.

I. Antennæ with club truncate.

R. cribratus, Gyll.—Dark rust-red, depressed; thorax about as long as broad, very strongly and coarsely punctured; elytra rather widened in the middle, with rows of strong punctures; under-side of head and sides of body strongly punctured. Length, 1¾ lin.

The truncate club of the antennæ and sub-quadrate thorax at once separate this very distinct species; it is very local. Stretford, Mr. Reston; on decayed roots of lime trees, Withington Common, near Manchester, Mr. Chappell; Weybridge, Esher, Richmond Park, New Forest, Reigate, Tilgate Forest, Birch Wood; Ireland (Galway), Mr. J. J. Walker; Studley Park, Ripon, in fungus, Mr. G. R. Waterhouse.

II. Antennæ with club rounded at apex.

i. Colour testaceous or ferruginous, sometimes with indications of a darker shade on disc of thorax and elytra.

1. Punctuation of thorax close and very fine.

R. depressus, Fabr.—Light rust-red, suture of elytra darker; body depressed; head of male large, about as broad as thorax, of female narrower; thorax longer than broad, widest in front, thickly and very finely punctured; elytra with very finely punctured striæ, first interstice with a row of fine punctures, second interstice widened and irregularly punctured. Length, 1—2 lin.

Not uncommon under bark of pine and Scotch fir; widely distributed.

2. Punctuation of thorax more or less coarse, but varying in degree.

A. Elytra depressed.

a. Average length, 1½ lin.; striæ on elytra finely punctured.

R. perforatus, Er.—Light rust-red or testaceous; thorax longer than broad, widest in front, very slightly contracted behind, with anterior angles plainly marked, rather coarsely punctured; club of antennæ oval; elytra depressed, parallel to middle and thence gradually narrowed, with rather weak finely punctured striæ.

Local; under bark and at sap; Chatham, Sheerness, Darenth, Mickleham, Shirley, Farnham, Esher, Buddon Wood (Leicestershire). This species is very liable to be confused with others, but its small size, depressed form, and the finely punctured striæ of the elytra, will serve to distinguish it.

b. Average length, 2 lin.; striæ on elytra coarsely punctured.

R. parallelocollis, Er.—Ferruginous, with disc of thorax and hinder half of elytra often clouded with a darker colour; head nearly as broad as thorax; thorax longer than broad, widest in front, very slightly narrowed behind, coarsely punctured; elytra depressed, especially in the middle, with rather strong plainly punctured striæ.

Not common under bark and at sap, although found in some numbers where it occurs; the late Archdeacon Hey once took it in numbers near York in fungus in company with *Atomaria fimetarii*; Darenth, Mickleham, Forest Hill, Esher, Shirley, &c.

This species is very variable as to colour; the prevailing colour is as given in the above descriptions, but many individuals are unicolorous rust-red, and some species are nearly as dark as *R. dispar*, from which they may be distinguished by their depressed form and broader and squarer thorax; from *R. ferrugineus*, which it most closely resembles, it may be separated by its depressed form and larger head.

B. Elytra convex, cylindrical.

R. ferrugineus, Payk.—Rather dark rust-red, unicolorous; head small, considerably narrower than thorax; thorax longer than broad, scarcely narrowed behind, very strongly punctured; elytra convex, with strongly punctured striæ; under-side deeply punctured, especially on the sides. Length, 1¾—2 lin.

Found under bark of pine; also under bark of oak near the burrows of *Cossus ligniperda*; local, but widely distributed.

ii. Prevailing colour pitchy or blackish; base and apex of elytra to a greater or less extent light.

1. Last segment of abdomen in both sexes with a plain impression, terminated on each side by a small prominence.

R. nitidulus, Fabr.—Rather elongate, slightly convex; head large, especially in the male; eyes prominent; thorax considerably longer than broad, more so in the male than in the female, plainly punctured on disc, finely punctured on sides; elytra with extreme side margins, apex and basal fourth part light red, with rather strongly punctured striæ. Length, 1½—2¼ lin.

Rare; under bark and at sap; Rannoch, Sherwood Forest, Dr. Power; Rannoch, Mr. Champion.

The only real distinguishing mark for this species is the impression on the last abdominal segment, which never varies; large specimens of *R. dispar* do duty for it in many collections: as a rule it is larger than that species, and there are certain differences in colour, but neither colour nor size are really reliable characters.

2. Last segment of the abdomen simple.

R. dispar, Gyll.—Elongate, slightly flatter than the preceding species; head large, especially in the male; eyes prominent; thorax evidently longer than broad, more so in the male than in the female, sides slightly rounded, finely punctured at sides, more plainly on disc; elytra plainly punctate-striate, apex broadly and shoulders narrowly light red, the colour, however, badly defined and variable. Length, 1½—2 lin.

Not uncommon at sappy bark in the North of England, Scotland, and Ireland. Newcastle, Braemar, Aviemore, Rannoch, Co. Down, Mr. Champion; under bark of pines and in fungus growing on decayed trees, Chat Moss, Dunham, &c., Mr. Chappell; under poplar bark, Stretford, Mr. Reston; Rannoch, and in profusion at Balmuto (Fife), Dr. Power.

iii. Elytra black or brownish-black, with a plainly defined yellow spot on each a little before apex.

R. bipustulatus, Fabr.—Rather flat, shining; thorax not much longer than broad, with sides and anterior and posterior angles slightly rounded, thickly and rather finely punctured; elytra with plainly punctured striæ, with a very badly defined yellowish spot at the shoulder, and a plain one before apex. Length, 1—1½ lin.

Under bark; the commonest species of the genus.

This species varies very much in colour, some specimens being piceous, and others light testaceous; the former are easily distinguished, as the two spots on the elytra are always plain, if the ground colour is at all darker; pale examples, however, may be confused with *R. perforatus*, which is about the same size, but the rounded sides of the thorax, and much more plainly punctured striæ of the elytra, will distinguish them.

iv. Colour unicolorous black.

R. politus, Hellw.—Oblong, rather broad and flat; head rather large, strongly impressed, thorax as long as broad, with sides and angles rounded, diffusely and somewhat finely punctured, with a space between centre and base smooth; elytra with plainly punctured striæ, which are evanescent towards sides and apex.
Length, 1½—2 lin.

This very distinct species is decidedly rare; it occurs under pine bark; Lee (Kent), by sweeping, Mr. Douglas; Tintern, Manchester, Aviemore; under bark of black poplar that had been partially submerged; Stretford, Mr. Reston; Rooke, Monmouthshire.

v. Elytra blue or bluish-green; head, thorax, and scutellum shining black.

R. cæruleipennis, Sahl.—Rather short and broad; antennæ brown-red with black club; thorax not longer than broad, narrower than elytra, with anterior and posterior angles rounded, rather thickly and finely punctured; elytra finely punctate-striate; legs ferruginous, with femora brownish. Length, 1½ lin.

One of the rarest of the British beetles. I know of no locality for it except the Lover's Walk at Matlock, where Mr. Matthews, Mr. Crotch, and, I believe, the late Mr. Garneys, have taken single specimens. I have taken many good beetles in the place, but have never been fortunate enough to secure a specimen.

[*R. parvulus*, Payk., is a species that might very likely be found in Britain; it is a small, flat, fuscous insect, with the head small, the thorax only as long as broad, with rounded sides, extremely finely punctured; the elytra are furnished with finely punctured striæ. Length, 1—1¼ lin.

It appears to be found under bark of aspens.]

Lincoln.

AN ASCENT OF MOUNT KOSCIUSKO.

BY E. MEYRICK, B.A., F.E.S.

Mount Kosciusko is the highest point of Australia; I say this advisedly, because an unreasonable Austrian zoologist has recently endeavoured to fix a new name on the mountain, on the ground that the highest point is not exactly where it was supposed to be; but the name of Mr. Kosciusko is attached to the whole mountain, which consists of a series of ridges or undulations rising one behind the other to the centre, where there are several points of nearly the same height; the highest of all, which I ascended, being 7200 feet.

I was indebted to the kindness and hospitality of Mr. A. Body, whose station (Jindabyne) is situated on the skirts of the mountain beside the Snowy River, at an elevation of 2700 feet, for the means of making the ascent in January last, in the interests of entomology.

Our party consisted of my host, a guide, and myself, with four horses. We started with fair weather, a warm wind blowing, and the thermometer at 94°, and made our way up a dry sandstone spur, clothed with the ordinary Australian forest of *Eucalyptus* and thin scrubby undergrowth, the insects being much the same as on the Blue Mountains. The ground was encumbered with fallen trees, and the travelling very rough, there being no track. At 5000 feet we emerged upon a swampy flat, bare of trees, but well grassed, and the boggier ground supporting a dense vegetation of heath-like shrubs (*Myrtaceæ, Leguminosæ*, and a *Veronica*); skirting this were low forest-clad ridges. Here the alpine fauna began suddenly, and consisted almost wholly of species quite new to me; principally *Geometræ* of the family *Larentiadæ*, which were in great profusion, and remarkable for their gay colouring.

Whilst collecting here rain began to fall, and we remounted and pushed on. The rain, however, increased to a steady downpour, and the wind rose and blew in fierce gusts right in our faces; we continued to ascend, but it became difficult to make our way along the exposed sides of the ranges, and impossible to collect; my companions complained of the cold. We had intended to camp out, but under these circumstances, we made for a deserted wooden hut, the only building on the whole mountain, which we reached about dusk. It was a small roughly constructed shed, in a very disorderly condition, and my companions were inclined to despise it; but I, who had anticipated nothing better than wet grass for my bed, was disposed to be thankful. Whilst the rest of the party made a fire and prepared tea, I employed the little remaining daylight in collecting. I found that the *Lepidoptera* appeared to like the rain, and flew freely, but my net and boxes became so wet, that operations were difficult. I took two species of *Simaëthis*, both of which I had found previously in Tasmania; *Mimeseoptilus celidotus*, which extends to New Zealand; and several species of *Tortricina* and *Œcophoridæ*, principally of Tasmanian types; our elevation being about 6000 feet. The thermometer fell at night to 40°.

The next morning was bright and fine; mists hung about the valleys, but soon cleared away, and the day proved eminently favourable. We started soon after sunrise; our way lay over undulating ridges, separated by boggy creeks, and luxuriantly clothed with long grass and many coloured *Compositæ*, over which the new *Xenica* described below was flying in abundance; the only other butterfly was an occasional specimen of *Pyrameis cardui*. The country now became very boggy, and demanded constant attention; these bogs constitute the chief difficulty of the ascent. I and my horse came down heavily once, owing to a concealed hole; but this was our only misadventure. The swampy ground was invariably overgrown with dense heathy scrub, and haunted by numerous *Geometræ*; also, as I was assured, by snakes, but we saw none.

A large herbaceous *Veronica*, with spikes of purplish-white blossom, grew in masses, from amongst which we disturbed numerous specimens of *Platyptilia emissalis*. I obtained also two examples of a very large new Crambid, of the genus which in Australia replaces *Crambus*. At 6500 feet I took a single worn specimen of the cosmopolitan, *Mecyna polygonalis*. Above this height the trees, which had become very stunted, ceased entirely. The granite hills which form the crest of the mountain, though sometimes broken and rocky, are mostly covered with a perfect smooth sward of short grass and silvery-leaved *Compositæ*, grazed over by troops of wild horses.

The shrubby vegetation of the lower plateaux is unable to maintain itself towards the summit, which is covered with snow nine months in the year. At the time of our visit the snow was confined to large patches, in positions where it lies scores of feet deep in winter. The day was clear, and from the summit we had an uninterrupted view of over 100 miles in every direction; northward up the valley of the Murray, which rises from a deep ravine of the mountain; southward over the tractless ranges of Gippsland, across the Victoria border; eastward to the distant Pacific. Several specimens of a large *Pieris*, which I could not capture, passed us on the summit, but I think they were the common *P. Aganippe*. I had half hoped to discover some form allied to *Erebia*, such as occurs in the New Zealand mountains, but saw no trace of anything of the kind; though I believe a month later there would be a better chance. Diligent search on the highest ground only procured two specimens of *Lepidoptera*, both of new species; one a *Conœca* (a genus allied to *Talæporia*), of which the larva is doubtless a case-bearer and lichen-feeder; the other a small *Cæsyra* (*Œcophoridæ*); both these being of familiar Australian types. A species of *Curculionidæ* was common on the blossoms of the peculiar Alpine umbellifer, *Aciphylla glacialis*, whose leaves resemble those of a fan-palm in miniature. This was the only beetle which I observed commonly on the mountain, though I could not spare time to search specially for them; my other captures consisted only of a few very small *Geodephaga* and *Curculionidæ*. Of *Hymenoptera* I saw none.

I expected *Trichoptera* to be abundant, as they are in Tasmania, but this was not the case ; I took very few species, and these were identical with those found on the Snowy River at lower levels.

We started on our descent at 3 p.m., and pitched our camp at sunset at about 6000 feet, beside a swamp. Insects were flying in abundance, principally of the species which I had already met with; a large mosquito was common within the precincts of the swamp, but curiously, would not venture a yard outside it, which was fortunate.

Amongst the *Tineina* represented were *Stathmopoda* (two species, both Tasmanian), *Elachista*, *Pleurota*, and *Zelleria*, with several endemic Australian genera of *Œcophoridæ.* During the night the wind increased almost to a gale, and a part of our tent broke loose and could not be secured, so that our rest was troubled. In the morning more rain was evidently impending, and we made the best of our way back, stopping occasionally for a few minutes' collecting, my best capture being a beautiful green *Iodis* ; the Station being reached after a pretty rough scramble without mishap. The distance from the Station to the summit is about 35 miles ; during the three days occupied we were almost constantly in the saddle, the travelling being necessarily slow, and the ground sometimes so rough that only horses born to the work would face it.

I remained ten days at Jindabyne, and made several shorter excursions to various parts of the same range, ascending to 5000 feet. It was in one of these that I took the single specimen of the new *Telesto* described below. Butterflies were very scarce, but *Xenica Klugii* abounded on the lower slopes. My best day's collecting was on a peak 4700 feet high ; it was quite fine when I started with the guide, but came on to rain as we approached the ground, and poured in torrents for the rest of the day. The peak was capped by huge granite boulders, amongst which grew a thin shrubby undergrowth; and, unpromising as the day appeared, insects were very plentiful, but my net and boxes suffered considerably. A singular and beautiful undescribed *Geometer*, allied to *Aspilates*, but superficially recalling a *Glyphodes*, occurred sitting on the rocks. I took also a new nearly white *Mimeseoptilus*, and many *Tortricina* and *Œcophoridæ.*

During the various excursions on the mountains I obtained over 60 new species of *Lepidoptera*, besides much information as to distribution. The most important general result arrived at was that in this Alpine fauna there was nothing of an extra-Australian character; the species were in great part new, but belonged to the same genera as are everywhere prevalent in the lowlands of Australia and Tasmania ;

and it may therefore be inferred with probability that Australia has had no connection with the Alpine fauna characteristic of other main mountain ranges.

Subjoined are descriptions of the two new species of butterflies referred to above:

XENICA ORICHORA, *n. sp.*

♂. 30—33 mm. Form of *X. hobartia.* Wings above orange-fulvous, with dark fuscous markings, much as in *X. hobartia,* but more extended along veins; fore-wings with an entire* from middle of lower median vein to inner margin, only interrupted sometimes between veins 2 and 3, and with bar in middle of cell not oblique. Fore-wings, beneath, marked as above, but markings much lighter and becoming obsolete towards disc. Hind-wings, beneath, fuscous, with a black white-centred ocellus, surrounded by an ochreous ring, beneath costa beyond middle, and a similar one near hind-margin above anal angle; veins towards base of wing marked by ochreous-whitish streaks; inner margin narrowly ochreous-whitish; four ante-median ochreous-whitish spots, first sub-quadrate, on costa at ¼, second smaller, triangular, beneath first, third larger, trapezoidal, beyond second, fourth sub-quadrate, below third; a curved ochreous-whitish bar from middle of costa to base of vein 5; a somewhat inwards-curved row of five ochreous-whitish silvery-tinged sub-triangular spots from beneath upper ocellus to above anal angle; three small indistinct pale ochreous spots in a curved row between ocelli; a sub-marginal series of six semi-oval silvery-white spots, beyond which the dark hind-margin is divided by a pale ochreous line.

Allied to *X. hobartia* and *X. Kershawi,* but the markings on the under-side of the hind-wings are very different from either.

Mount Kosciusko, about 6000 feet, in January; common in flowery valleys.

TELESTO DRACHMOPHORA, *n. sp.*

♂. 30 mm. Form of *T. Ismene,* Newm. Wings, above, quite as in *T. Ismene,* but hairs towards base more fulvous-tinged. Fore-wings, beneath, dark fuscous, towards costa suffusedly fulvous; an ochreous-white dot in disc beyond middle, and short transverse bar from costa at ¾. Hind-wings, beneath, ochreous-brown, hairs more ochreous; six moderate, tolerably equal, sub-oval, silvery-white spots; first in disc at ⅓, second near inner margin above middle, the other four connected and forming a transverse irregular series beyond middle, terminating at each extremity in a larger suffused, irregular, whitish-ochreous spot; a cloudy whitish-ochreous spot near hind-margin above middle, and two small, indistinct marks beneath it; cilia obscurely spotted with grey and whitish-ochreous.

The under-surface of the hind-wings is quite different from any other species known to me.

Mount Kosciusko, at 3000 feet, in January; one specimen.

Parramatta, N. S. Wales:
June 24th, 1885.

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* Band? [omitted in the M.S. EDS.]

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

(*Continued from p.* 51).

HYLOTOMINA (i, p. 65).

Thomson divides the *Hylotomina* into two sub-tribes: the *Hylotomides* with the hind tibiæ spined and the radial cellule appendiculate; and the *Schizocerides* with no spines on tibiæ, and the radial cellule not appendiculate; the latter, having the antennæ furcate in the males. Of the first group we have only one genus, the well-known

HYLOTOMA, Latr.

SYNOPSIS OF THE SPECIES.

1 (10) Abdomen luteous.

2 (3) Legs and thorax entirely bluish-black ....*pagana*, Pz.

3 (2) Legs more or less luteous.

4 (7) Pleuræ marked with yellow.

5 (6) Legs for the greater part bluish-black, hind tarsi not annulated with black... *pagana*, Pz., *var. Stephensi*, Lch.

6 (5) Legs for the greater part yellow; hind tarsi annulated with black... *rosæ*, L.

7 (4) Pleuræ not marked with yellow.

8 (9) Femora black only at apex, anterior-wings with a fascia below the stigma... *cyaneo-crocea*, Fourc.

9 (8) Femora quite black, wings without a fascia below the stigma...*melanochra* L.

10 (1) Abdomen black or blue.

11 (17) Tibiæ more or less white, wings mostly hyaline.

12 (13) Wings hyaline, without a fascia; four anterior legs black, posterior tibiæ white .... *ciliaris*, L.

13 (16) Wings with only a fascia below the stigma.

14 (15) 3rd cubital cellule on lower side shorter than 2nd; 6th joint of maxillary palpi not double the length of 4th; wings yellowish, tibiæ and tarsi usually yellowish-white ....*ustulata*, L.

15 (14) 3rd cubital cellule on lower side as long as, if not longer than, 2nd; 6th joint of maxillary palpi double the length of 4th; wings hyaline, nervures black, hind tibiæ pale in front, black behind ....*fuscipes*, Fall.

16 (12) Wings with a fascia and also a violet-fuscous blotch in radial cellule; tibiæ and tarsi yellowish-white, abdomen with testaceous stripes on back... *atrata*, Forst.

17 (11) Tibiæ entirely black, wings blackish-violaceous.

18 (19) 3rd transverse cubital nervure almost straight; 3rd cubital cellule not much longer than broad ....*violacea*, Fab.

19 (18) 3rd transverse cubital nervure bent, 3rd cubital cellule longer than broad.

20 (23) 3rd transverse cubital nervure bent outwardly, head dilated behind; antennæ stout, short.

21 (22) 3rd cubital cellule not wider on lower than on upper side; accessory nervure received a very little beyond the middle of cellule. Sheaths of ovipositor normal .... *enodis*, L.

22 (21) 3rd cubital cellule wider above than below the recurrent nervure, forming an elbow above; accessory nervure received considerably beyond the middle. Sheath of ovipositor produced into hooked-shaped processes .. *berberidis*, Schr. (See Vol. ii, fig. 8).

23 (20) 3rd cubital nervure obliquely curved, the 3rd cubital cellule much wider above than below; head not dilated behind; antennæ long and slender .. *gracilicornis*, Kl.

VIOLACEA, = *enodis*, Kl.; *vulgaris*, Br. and Zad.; *cœruleipennis*, Thoms., André.

ENODIS, L. *non* Kl., = *atrata*, Kl.; *nigripes*, Br. and Zad.—The wings in this species are lighter coloured than in *violacea*, the dark violaceous tint, as a rule, only extending to the middle, while the hinder pair want it entirely. Easily known from it otherwise by the form of the 3rd transverse cubital nervure; longer 3rd cubital cellule; by the recurrent nervure in the hind-wings being received nearer the middle of the cellule, and by the accessory nervure being appendiculated further from the middle. If anything, the head is more strongly dilated behind the eyes, and the front is more projecting.

BERBERIDIS.—The peculiar structure of the sheath of the ovipositor in the ♀ renders that sex easily recognisable, but the ♂ is not at all readily separated from the same sex in *enodis*. The antennæ apparently are a little longer; the antennal tubercle is deeper, so that the carinæ are sharper, the 3rd cubital cellule is longer, the recurrent nervure in hind-wings is received nearer the end of the cellule; usually, the wings are darker. I am not quite satisfied that the specimen (a ♂) representing *berberidis* in Stephens' collection is actually that species; so that further evidence of the British nativity is very desirable.

GRACILICORNIS, ♂, = *cyanella*, Kl., = *pilicornis*, Leach.—This species has a more slender body than any of the other species of the same coloration, and is easily known from them by the head not being dilated behind the eyes, by the more oblique 3rd transverse cubital nervure, by the 3rd cellule being more dilated on upper-side, and by the longer and more slender antennæ.

FUSCIPES, = *violacea*, Klug, *non* Fab.—Compared with *ciliaris*, *fuscipes* is a larger and broader insect; its head is, if anything, more swollen, the incision in the clypeus is deeper, and otherwise it is readily known from it by the fascia under the stigma, as well as by the longer 3rd cubital cellule, and by the maxillary palpi.

Ustulata (pl. v, fig. 7, vol. ii).—No author describes this species as a variable one, yet in Scotland it varies considerably, especially in the coloration of the legs and wings. Thus Thomson separates it from *H. fuscipes* and *ciliaris* by the wings being yellowish, and the tibiæ and tarsi pale yellow, while he characterises the two species I have named by the terms "Alæ hyalinæ," but neither the colour of the legs, nor of the wings, can be relied upon as marks of distinction between *ustulata* and *fuscipes*. With the darker specimens of *ustulata* the best marks of distinction are that *fuscipes* has the 3rd cubital cellule a little longer than the 2nd, while in *ustulata* it is shorter; and in *fuscipes* the 6th joint of the maxillary palpus is double the length of the 4th; in *ustulata* not more than half the length.

Atrata is a species easily recognised by the fascia in the radial cellule, by the wide blotch, and by the transverse marks on the dorsum of abdomen.

SCHIZOCERA, Latr.

Thomson splits up *Schizocera* of the older authors into two: *Schizocera* having, according to him, the lanceolate cellule petiolate, and the antennæ inserted over the clypeus; and *Cyphona* with the antennæ well up above the clpyeus, and the lanceolate cellule contracted. In some species of *Schizocera* (*sensu st.*) the lanceolate cellule is certainly contracted, and, I believe, this is the case with most of them, but the basal part of the nervure is very short and not always easy to see. The form of the cellule, therefore, cannot serve to separate generically the two divisions; while I find so many gradations in the mode of insertion of the antennæ that I am unable to look upon this as a generic character. Further, the same species formed the type of *Schizocera* and *Cyphona*, so that the latter name is scarcely admissible. If, then, *S. geminata* is to be separated from *Schizocera*, the name of *Sericocera*, Brullé, should be used, as it does not seem to differ from *Cyphona*, Thoms., except in having the antennæ longer, and with longer and more silky pubescence. Our two British species of this group belong to *Cyphona*.

1 (2) Body entirely black, legs black, tibiæ and tarsi white ....*geminata*, L.
2 (1) Abdomen and thorax in part luteous; femora in part, or wholly, and tibiæ and tarsi, yellow .... *furcata*, Vill. (Vol. ii, pl. 5, fig. 9.)

(*To be continued.*)

NOTES ON *COLEOPTERA* AT BRANDON, SUFFOLK.

BY J. J. WALKER, R.N., F.E.S.

As the *Coleoptera* of Brandon do not appear to have received as much attention as the *Lepidoptera*, which have made this famous locality a " household word " among collectors, a few notes on some species which have lately fallen to my lot there, may induce other entomologists to further investigate the beetle-fauna of the district, which is certainly one of the most promising I have ever seen.

My visit was on July 9th and 10th, and the weather being in every respect favourable, *Coleoptera* were very abundant; and, except for the almost tropical heat of the sun's rays, reflected from the light sandy soil, and the swarms of most pertinacious flies which followed one everywhere, collecting was very pleasant and remunerative. Mr. C. G. Barrett's interesting notes on coast *Lepidoptera* occurring here (Ent. Mo. Mag., vol. vii, pp. 197—200) may, perhaps, be supplemented by the mention of some familiar sea-side beetles, such as *Broscus*, *Crypticus*, *Cteniopus*, *Sitones griseus*, *Cneorhinus geminatus*, &c., which turned up in more or less abundance, with others to be presently mentioned. Indeed, from the general aspect of the locality, as well as of the plants and insects, it was not difficult to imagine oneself at Deal or some other favoured spot on the coast, instead of being some forty miles inland.

Among many others taken, the following species seem most noteworthy:—*Harpalus discoideus*: this rare species was, oddly enough, the only one of its genus observed, and it occurred sparingly by grubbing at roots of various plants, in company with swarms of *Amara fulva*; *Amara consularis* and *Calathus fuscus*, with the preceding; *Olibrus millefolii*, in profusion, on *Achillea millefolium*; *Malthinus frontalis*, by sweeping; *Malachius ruficollis*, locally abundant on short grass just outside the town; *Dryophilus pusillus*, swept up commonly under fir trees; *Cassida sanguinolenta*, by sweeping; *Cteniopus sulphureus*, abundant on all sorts of flowers; *Apion rubens*, in plenty by sweeping; *Hypera fasciculata*, one only (afterwards lost), under *Erodium*, as usual; *Gymnetron noctis*, swarming in flowers of *Linaria vulgaris*, along with *Brachypterus gravidus*; on the roots of the same plant I found many round whitish galls, probably those produced by the larva of *G. linariæ*, but all, without exception, were too immature to do anything with; *Ceuthorhynchus setosus*, by sweeping; *C. asperifoliarum*, a few specimens on *Cynoglossum officinale*, but I could find none on the much more abundant *Echium vulgare* and *Lycopsis arvensis*, on which plants I have always hitherto taken it; *C. vicinus*, sparingly, by sweeping *Achillea millefolium*; *Baris abrotani* (*picicornis*), common at roots of *Reseda lutea*, growing in clean loose sand, the specimens mostly very large and brightly coloured.

By promiscuous sweeping on the banks of the Little Ouse, *Haliplus fluviatilis*, *Pæderus riparius*, *Phalacrus caricis*, *Cercus pedicularius* (common on *Spiræa*), and *Silis ruficollis*, were the best things obtained.

The *Lepidoptera* were a complete failure, the only one of the Brandon specialities which I saw being a miserably worn *Lithostege griseata*, and even the commonest species were very poorly represented. The sole exception was *Callimorpha jacobææ*, the larvæ of which were in the utmost profusion, having nearly everywhere eaten their food-plant, the ragwort, down to the bare stalks.

Among the *Hemiptera* I may mention *Pseudophlœus Falleni*, which occurred sparingly, along with *Nysius thymi*, at the roots of *Erodium*.

H.M.S. "Cherub," Portland:
August 6th, 1885.

Abdera 4-fasciata, and other Coleoptera in Kent.—Two or three excursions, in the early part of July, to Cobham Park, one of my favourite old hunting-grounds in the Chatham district, were, as regards *Coleoptera*, fairly successful, although insects of all orders were by no means as abundant as in past years.

The best capture was perhaps *Abdera 4-fasciata*, of which species Mr. G. C. Champion and I were fortunate enough to stumble on a small colony, in a large, partly decayed hornbeam tree. It occurred chiefly under the dry, loose bark, and in some very dry fungoid growth on the rotten wood, in company with *Cis festivus*; but a few were taken, running very actively on the tree-trunk. Altogether, we bottled about 30 specimens, varying greatly in size, like most wood-feeders: it is one of the most fragile insects with which I am acquainted.

Cryptophagus ruficornis occurred very sparingly under the loose bark of some large ash logs, as before in company with *Diphyllus lunatus*: these logs also produced *Euplectus bicolor*, *Bythinus Curtisii*, *Cerylon ferrugineum* (common), *Paromalus flavicornis*, *Abræus globosus*, *Lathridius testaceus* (a few), *Hylesinus crenatus*, &c.

Cryptarcha strigata and *imperialis* turned up at the exuding sap of a *Cossus*-infected oak, and the showy and active *Oxyporus rufus* in toadstools: and by sweeping, the best things obtained were *Homalota hepatica* (1), *Anisotoma parvula*, *Cyrtusa pauxilla*, *Hydnobius strigosus*, *Tillus elongatus*, *Liosomus oblongulus* (2), and a few *Ceuthorhynchideus versicolor*.—J. J. Walker, H.M.S. "Cherub," Portland: *August 6th*, 1885.

Ceuthorhynchus resedæ, &c., at Cromer.—This somewhat scarce weevil (for which I had vainly searched every plant of *Reseda luteola* I met with for many years past), turned up in great profusion at Cromer, at the end of June, on the "Weld," growing abundantly in some fields on the cliffs. In the same locality I met with *Olibrus pygmæus*, *Otiorhynchus raucus*, *Baris abrotani*, and *Hylesinus oleiperda*, among others, and *Bledius subterraneus* was found in great numbers burrowing in the perpendicular sides of a sand-pit.

I shall be glad to give a few unset *C. resedæ* to any Coleopterist in want of the species.—Id.

Coleoptera at Tonbridge.—In the winter months, from December to the beginning of April, 1885, I occasionally collected within two or three miles of Tonbridge. By sifting dead leaves, *Metabletus truncatellus* and *Habrocerus capillaricornis*. In moss, *Bembidium Mannerheimi*. In nests of water-rat, *Oxypoda vittata* and *Homalota triangulum*; of grass mice, *Ocalea badia* and *Oxypoda nigrina*. In grass tufts, *Metabletus obscuroguttatus*, *Bradycellus harpalinus*, *Conurus immaculatus*, *Plinthus caliginosus* (1), *Tropiphorus carinatus* (1). In swampy places in grass tufts or reeds, *Lebia chlorocephala*, *Anchomenus gracilis*, *Oxypoda lentula* (5), *Calodera riparia* (1), *C. æthiops*, *Homalota ignobilis* (1), *H. exilis* (1), *Stilicus orbiculatus*. In flood refuse, *Anchomenus livens*, *Callicerus obscurus*, *Homalota languida* ♂ (4), *H. pavens*, *H. luteipes*, *H. debilis*, *H. aquatica*, *H. pygmæa*, *H. clientula*, *Achenium humile*.

Sweeping at the end of April procured for me *Coryphium augusticolle* (1), *Homalota atricolor*, *Epuræa melina* (1), and *Adimonia suturalis* on heather.

Sweeping and beating from the end of May to middle of July, I got, within a radius of five miles of Tonbridge; *Homæusa acuminata* (1), *Oxypoda exoleta* (1), *O. nigrina* (several), *Homalota splendens*(1), a wonderfully long wiry creature, *H. indubia*, *H. intermedia*, *Colon Zebei* ♂ (2), *C. brunneum*, and two other species of *Colon* besides, which I cannot make out, *Thalycra sericea* (4), *Ips* 4-*punctata* (1 flying), *Antherophagus pallens* (1 dark specimen), *Throscus carinifrons*, several in flower blossom, as well as odd ones by sweeping, and one in a faggot. The late Mr. Wollaston found a single specimen crawling on a fence in Tonbridge town. Imagine, therefore, my joy at having found it again. One day I bottled about forty *dermestoides*, but, alas, only one *carinifrons* was amongst them. *Corymbites bipustulatus* (1 with nearly red elytra) from a fir tree, *Limonius minutus* (1), *Dolopius marginatus*, *Cœnocara bovistæ* (1), *Sitones cambricus*, *Balaninus tessellatus*, *Bruchus loti* (in plenty), *Lamprosoma concolor*, *Lema cyanella*, and *Strangalia nigra* turned up in my net. I found *Ips ferrugineus* in a house, and a *Deleaster dichrous* flew to light at dark.

In marshy places I found *Oodes helopioides*, *Anchomenus gracilis*, *Ocyusa picina*, *Homalota pilosiventris* (1), *Philonthus micans*.

In carrion *Microglossa pulla* and *Aleochara lygæa* (1).

In dung *Homalota lævana* (1) and *H. cinnamoptera*.

Under bark of elm log, *Calodera umbrosa* (1). Last year I found several in excrement. Oak log produced *Scolytus intricatus*.

Sap of oak stumps produced *Microglossa pulla* (1), *Heterothops* 4-*punctula* (1), *Homalium planum*, *Homalota villosula* (2), and *H. pilosiventris* (1) of which I found several in excrement last year.

In faggots, *Epuræa parvula* in plenty, *Anthribus albinus* (1), and *Plinthus caliginosus* (1).

In or on decaying trunks of horse-chestnut, *Melasis buprestoides* (24), *Cis pygmæus*, *Abdera 4-fasciata*, feeding on fungoid growth, *Homalium pygmæum* (1); of elm, *Asclera cærulea;* of oak, *Conopalpus testaceus;* of willow, *Melandrya caraboides*, *Tillus elongatus*, *Xyletinus ater* (1).

A Cossus infected oak yielded *Placusa pumilio* and *Epuræa diffusa* (2).—A. C. HORNER, Tonbridge: *July*, 1885.

Coleoptera on Snowdon.—On August 2nd and 3rd, I spent a short but very pleasant holiday at Llanberis along with Dr. J. W. Ellis, and made two ascents of Snowdon, from Llanberis and Pen-y-pas. *Coleoptera* were not nearly so plentiful as when Dr. Ellis was there in May, but we succeeded in taking *Carabus arvensis*, *C. catenulatus*, *Nebria Gyllenhali*, *Patrobus assimilis*, *Pterostichus vitreus*, *P. æthiops*, *Calathus micropterus*, *Bradycellus placidus*, *Aphodius lapponum*, &c. We made a long and careful search for the beautiful *Chrysomela cerealis*, but only succeeded in taking two, which fell to my lot. Although August is rather too late to look for this species, I do not think it is ever really abundant, otherwise we should have found traces of it in the webs of the immense spiders which occur under almost every large stone. Elytra of *P. æthiops*, *N. Gyllenhali*, and many other species were in plenty. *Thymus serpyllum*, which is said to be the food-plant of *C. cerealis*, was almost as scarce as the beetle.—R. WILDING, 40, Downing Street, Liverpool: *August*, 1885.

Coleoptera in Thanet.—From the 7th to 15th of July, I was staying at St. Peter's with my friend Mr. Wood, and through his guidance to various localities, I was able to obtain some good series of local insects, among others the following: *Tychius lineatulus* at Kingsgate; at Pegwell Bay, *Donacia nigra* in abundance, *Heterocerus arenarius*, *obsoletus*, *fusculus*, *Coccidula scutellata*, *Olibrus oblongus*; at Deal, *Melanotus punctolineatus*, *Aphodius sus* and *nitidus*, *Donacia thalassina*, and a single *Odontoscelis fuliginosus*; at Birchington, *Malachius viridis*, *Antherophagus pallens*, *Apion malvæ* and *livescerum*, *Amara convexiuscula*, *Psylliodes affinis*, *Gymnetron noctis*. I shall be glad to supply Coleopterists with *Donacia nigra* or *Aphodius sus.*—H. BEDFORD PIM, Leaside, Kingswood Road, Upper Norwood, S.E.: *August 17th*, 1885.

Stenolophus Skrimshiranus at Lewisham.—In July I found three specimens of *Stenolophus Skrimshiranus* at Lewisham in a bundle of half-dried grass which I had thrown into a small pond. This insect used to occur commonly in Hammersmith Marshes, but has not, apparently, been found in any numbers for a long time.—A. BEAUMONT, 30, Ladywell Park, Lewisham: *August 8th*, 1885.

Chærocampa nerii at Hartlepool.—Yesterday morning I had the great pleasure of capturing a specimen of *Chærocampa nerii* here, it was at rest on the railing surrounding the timber-yard of my firm. The specimen is in fair condition, though evidently hibernated, the colours being somewhat faded. It seems very strange to see this species so far North.—J. GARDNER, 8, Friar Terrace, Hartlepool: *July 24th*, 1885.

Tinea picarella bred.—I have been fortunate in breeding half-a-dozen specimens of this insect from fungi this summer.—Id.

Prolongation of Life in the Pupæ of Lycæna Iolas.—In June, 1883, a correspondent sent me a number of larvæ of *Lycæna Iolas* from Budapest, where this insect is very abundant; these pupated during the month of July in the same year, and the majority came out in July, 1884, though of course some few of the pupæ died.

Last winter, when clearing out my cage, I noticed one or two of the pupæ looking plump and healthy, so I kept them, but did not give them another thought until July 23rd last, when I saw a nice specimen resting on the glass of the cage, this, on examination, turned out to be a ♂ of the form usually taken in North Africa, *i. e.*, with the ocelli on the under-side of the wings greatly reduced and obscured; then, to my surprise, about four days later another appeared, this, however, was a nice ♀ of the ordinary type.

If we had had a cold summer these pupæ would, probably, have died, but that they should have lived through two winters is very interesting, and points to a possible cause of the abundance of some butterflies in certain seasons.—G. T. Baker, Augustus Road, Edgbaston, Birmingham: *August 8th*, 1885.

What is the true Chrysophanus Hippothoë of Linneus?—In No. 255, p. 64, of this Magazine, Mr. Butler considers that the Linnean species should be *Ch. dispar*, Haw. (*rutilans*, Wernbg.). In my "Lepidoptera Scandinaviæ, Rhopalocera" (1853), I have already said, "*P. Hippothoë* auct., non in *Suecia*, est repertus, quare synonymiam Linnei citatam, F. S., No. 1046, ad hanc speciem—*P. Chryseis*, W. V.—pertinere credo. Descriptio a illustr. viro, *l. c.*, data nullam differentiam præbet:—Statura *P. virgaureæ* ut in descriptione Linnei dicitur cum *P. Chryseis* etiam magis cum *P. Hippothoë* congruit."

When I wrote these words, the Scandinavian peninsula had been by no means so fully explored as it now is, and at that time I thought it not impossible that *Ch. dispar* might be found. I then did not give *Ch. Chryseis* its Linnean name. During the twenty-two years that have since elapsed, our country has been thoroughly searched, and in no place has *Ch. dispar* been found. It is, therefore, impossible that such a butterfly can have escaped the observation of the numerous collectors who have since investigated the peninsula. The species that Linneus described in his "Fauna Suecica," should be one that occurs in Sweden:—"Habitat apud nos rarissime" are the words of Linneus. No species other than *Ch. chryseis* has been found in Sweden to which the Linnean description is applicable. Messrs. Staudinger and Kirby are thus right in giving to *Ch. Chryseis* the name *Hippothoë* of Linneus. *Ch. dispar* does not occur in Denmark, nor in Finland, but *Ch. Chryseis* is found in both. In Sweden and Norway *Ch. Chryseis* is nowhere common, but occurs here and there in the southern and middle provinces, and I am sure it is the *P. Hippothoë* of Linneus. Dalman, in his "Uppställning af Sveriges Fjärilar" (1816), also says, concerning *P. Hippothoë* (= *dispar*):—"anne unquam in Suecia inventa hæc species?, mihi numquam obvia, quare fere crediderim synon. Linnei forte ad sequentem (= *Chryseis*) pertinere."—H. D. J. Wallengren, Farhult, near Mjöhult, Sweden: *August 7th*, 1885.

The home of Cidaria reticulata.—I have often been asked to give the life-history of this beautiful insect; by this time I ought to know something of it, after thirty years continuous attention. I first met with it in 1856, on the borders of Windermere Lake in Lancashire, then the late T. H. Allis and I met with some five or six specimens; at the time we both thought it to be a second brood of *C. silaceata*; but the year following, T. H. Allis was visiting H. Doubleday at Epping, and as they were looking over the European collection of the latter, he, pointing to *reticulata*, said, "Thomas, thou oughtest to get this in thy north journey;" Allis at once said, "I have taken it, both Hodgkinson and I took it last year." H. Doubleday was rather sceptical until specimens were sent to him to enable him to verify the species. In the meantime I had sold mine for one shilling each as *silaceata*; year after year we looked for more, but to no purpose; we had left some pieces of paper on bushes to show which way either of us had gone through the woods, and Allis told Butler, of Kendal, to go and look where the papers were left; he went, and took five in one day, some two miles apart; there have never been as many taken since. I once got three, and during thirty years I have only captured nine specimens. The insect is, like *C. silaceata*, of a retiring disposition. After that, the Rev. J. Hellins, of Exeter, wrote me, saying, that the supposed food-plant was the English balsam, *Impatiens noli-me-tangere*. I had never seen the plant; I told Gregson, and he told me where he had seen the plant, but I could not find the place, it was so overgrown with bushes, &c., until 1877 or 1878, when I got into a fix in a swamp, and was carefully looking where to step next, when I saw a strange plant, I hastily picked it up, got on to a dry place, and was sure it was the long sought-for *Impatiens*; a few days after I went with working boots on, I looked carefully at all the plants, but saw only the leaves of one plant eaten, I found the larva, sent it on to Mr. Buckler, he pronounced it to be *Hadena rectilinea*, about one-third grown; he asked me if any bilberry was near: there was some a hundred yards off; no doubt it was a stray egg laid on the balsam.

I went again in September, took a few plants home with me, got my glass and spent several hours in trying to see if I could find any eggs; I found some, they duly hatched; the larva, when young, being transparent, looked like a faint white streak; I paid great attention to them, gave them leaves, flowers, and seeds; the latter is the favourite pabulum; the great difficulty is to keep the plant, it shrivels and dries up if injured in the least, or if air gets to it becomes mouldy directly; I found the best way to keep it fresh was in a tin canister with blotting paper. I got a fair number of the larvæ in 1878, but the mortality was great. The Rev. G. Smart, of Lytham, called one day, and I brought him ten dead larvæ in my hand. I suppose the want of the bracing air made them succumb. I sent two larvæ to Mr. Buckler, from which he bred one imago. The place got destroyed, I have been several times since, but not found one larva; the plant still exists, but I have not found any larva since 1878. During October, 1883, I went to a place where I had seen the plant some years ago, and I found two larvæ only, one each on the 30th and 31st October; one emerged in July, 1884. Had I not known the exact spot for the little clump of the plant, my long journey at this time of the year would have been fruitless. Last year I re-visited the same place, but six weeks too early; the larvæ were young; I got fresh supplies of food, and kept them singly, they did not seem to thrive, till at last I put plenty of the plant in a large box, without any covering, before the greenhouse window, open night and day, I never disturbed them, and did not know whether I should breed any or not; however, seven gorgeous specimens have emerged. On the 24th of July, I was on a pleasure excursion, and having four hours to spare, I took a splendid large specimen quite unexpectedly, in fact I could not realize what I had in my net, it was such a great surprise. I paid other visits, but to no purpose. One extraordinary thing about the larvæ of *reticulata* is that I never had any ichneumons come from them; last year I sent J. E. Fletcher two ichneumons with very long antennæ that I found among the plant. My own series being already full (16), I shall have some for my friends.—J. B. HODGKINSON, 6, Fishergate Hill, Preston: *August* 12*th*, 1885.

Ochsenheimeria vacculella.—How does the larva live?—Lately, I had sent to me for determination by Dr. W. H. Lowe some specimens of this insect, with the following note on them :—

"Last year, whilst walking in Richmond Park, I came across a rotten crab-tree, and by breaking up the wood, I found between the lamina a lazy grey moth; it would not fly, but would only creep from one crevice to another. To-day (July 17th, 1885), in company with Robert Logan, I visited the rotten crab-tree, and found the same species of moth in good condition, but, as before, unwilling to leave its domicile."

Mr. Logan being here about three weeks afterwards, I asked him to send me a note, embodying his own observations as to this insect. They are as follows :—

On the 17th July, I saw Dr. Lowe take several fine specimens of *Ochsenheimeria vacculella* from under the bark of an old crab-tree in Richmond Park. They did not seem to be anxious to get away, but sidled into the corners of the box, so that several could be put in at once. There was no long vegetation of any kind near, nothing but the shortest of turf; and the presumption seems to be, that the larvæ had fed in the decayed wood, like those of *Œcophora sulphurella*.—R. F. LOGAN: *August* 13*th*, 1885.

I also asked Mr. Beaumont, who had lately taken the insect for a note of his capture:

On the third of August, when searching for beetles, I found two *Ochsenheimeria vacculella under the bark* of a large willow at Lewisham.—ALFRED BEAUMONT, 30, Ladywell Park, Lewisham: *August* 6*th*, 1885.

I may add, that since the above note was written, Mr. Beaumont has handed me several other specimens from *under the bark* of the willow tree.

I have collated the following published notices of this insect :—

During the past season I took three specimens of this scarce species. The first beneath the bark of a willow tree, the last on the trunk of an oak tree, at Leatherhead.—J. SCOTT: *January* 9*th*, 1861. Intelligencer IX, p. 123, 1861.

Sometimes found early in July on windows in houses. The suspicion formerly entertained that it fed on rotten wood, seems, now that the larval habits of *O. taurella* are known, improbable.—A. RÖSSLER. Schmett. v. Nassau, p. 214, No. 1286, 1866.

Sometimes early in July on windows in houses. Probably the larva or pupa has been brought in with hay.—A. **Rössler**. Schmett. v. Wiesbaden, p. 222, No. 1150, 1881.

Rare; observed at Louvain and at Brussels in houses. The larva feeds in rotten wood.—C. **De Fré**. Ann. Ent. Soc. Belge, II, p. 114, 1858.

I found this abundantly the first half of July, 1870, on the trunks of plum trees, between corn fields, close to the town of Altenburg.—**Krause**. Stett. Ent. Zeit, p. 296, 1871.

Of late years not met with. In August, 1865, the moths were so plentiful at the Hydropathic establishment at Frauendorf, near Stettin, that the white-washed walls of the buildings were covered with them. Numbers of them might be seen swimming in the pieces of water.—F. O. **Büttner**. Stett. Ent. Zeit., p. 428, 1880.

P. C. T. Snellen in "De Vlinders van Nederland"—*Micro-Lepidoptera*, pp. 502–4, refers the rye-feeding larva, which had hitherto been supposed to belong to *O. taurella* to *O. vacculella*. The rye-feeder had been bred by Dr. Gallus (Stettin. Ent. Zeit, p. 352, 1865), and by Dr. J. Wttewaall (Tijdschr. v. Entom., X, p. 23, 1867), but neither author seems to have given any definition of the perfect insect which they bred; we have only the authority of the two writers, Dr. Gallus saying he bred *taurella*, and Dr. Wttewaall pronouncing his insect *urella?* Had they only described *the moths that they bred*, others would have had an opportunity of satisfying themselves of the correctness of their determinations.

Now, my friend Heer P. C. T. Snellen upsets all one's previous notions, by saying of *O. taurella*, "the larva is, I believe, still unknown, for that which lives in the stems of rye is that of *O. vacculella*;" and of *O. vacculella* he says, "it lives as larva in the stems of rye, and its mode of life has been very fully described by Gallus and Wttewaall."

I must say, that to me, the balance of probability still appears to be that the species, with perfectly simple antennæ, *O. vacculella*, is in the larva state a rotten-wood-feeder.—H. T. **Stainton**, Mountsfield, Lewisham, S.E.: *August 18th*, 1885.

Assembling of Butalis senescens.—On the 10th inst., happening to notice on the downs here several males of *Butalis senescens* buzzing round a female which was sitting on a grass stem, I tied up the fair lady in the end of my net which I then laid down upon the ground; very soon the males began to appear coming up by short flights from stem to stem, and in about half-an-hour I had captured 30 males by simply boxing them as they sat on the net. So far as I could judge they seemed to come about equally from all directions, and not only up against the wind. I am not aware that this mode of attraction has been successfully tried before with any of the genus *Butalis.*—**Eustace** R. **Bankes**, The Rectory, Corfe Castle: *July 20th*, 1885.

Cordulia arctica, Zett., in the Schwarzwald (Baden).—The following note adds to our knowledge of the distribution of this arctic and alpine dragon-fly. During a short visit (of which I hope to give a more detailed account hereafter) to the Schwarzwald in the latter part of July and beginning of August, I captured two examples (♂ ♀) of *C. arctica*; one on a peat moss behind the "Wasserfall" Inn above Triberg, the other on the Feldberg (about 4500 ft.); more were seen. Its congener, *C. metallica*, was in extreme abundance at every pond and small lake.—R. McLachlan, Lewisham: *August* 15*th*, 1885.

A great swarm of Hydropsyche instabilis, Curt., in Inverness-shire.—On the evening of July 27th, when driving down Glen Tromie, I passed through a cloud of *Hydropsyche instabilis*, which extended for upwards of five miles. With one sweep of my big net 50 or 60 might be taken, which will give you some idea of the density of the cloud; I never saw anything to equal it before. I drove down the same glen on the 31st, but did not then see a single specimen.—J. J. King, Village of Insh, by Kingussie: *August* 3*rd*, 1885.

Dead Humble-bees under Lime trees.—Dead Humble-bees, more or less mutilated, have often been observed in large numbers under lime trees, and various suggestions have been offered to account for their presence in such a position. Some observations which I was able to make the other day suggest the probable reason for the death and evisceration of such bees, and, therefore, may be worth recording. While walking on Hayes Common, Kent, on the 3rd of this month, I noticed, under a large spreading lime tree, in full flower, that the ground was strewn with bodies of Humble-bees of several species; I and one of my children picked up a number of them, and found several still moving their legs, and evidently only quite recently mutilated; nearly every specimen appearing to have been killed in the same manner, having a large hole in the upper surface of the thorax, and another at the apex of the abdomen, the apical segments being removed; thinking that it would be a good opportunity to try and find out who or what was the cause of their death, I sat down close to the tree and watched. The tree was covered with bloom, and Hive-bees and Humble-bees abounded, but I could not see any wasps, so I at once abandoned the idea that they were the culprits, as some have thought probable; everything seemed peaceable, and for some time I could see no possible enemy to suspect. At last, I saw among the higher branches a bird, and from the exact spot where it was fidgetting about, down dropped a carcase of a bee: I at once picked it up, and found the legs still twitching convulsively; although I did not actually see the bird drop the bee, I think there can be little doubt that it did. I went back again, and sat down to try and discover what bird it was, and after a little time a bird, which was in all probability the same, although I had lost sight of it while examining the bee, came out into a less leafy part of the tree, and I was able to identify it as a great Tom-tit; and although I have no positive evidence whereby to convict *Parus major*, I think the probabilities of his being the culprit are so strong, that it is hardly necessary to seek further for the murderer of these humble innocents.—Edward Saunders, St. Ann's, Mason's Hill, Bromley: *August* 6*th*, 1885.

Entomological Society of London, 1*st July*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

Messrs. Thomas Edmunds, of Totnes, and F. M. Campbell, F.L.S., of Rose Hill, Hoddesdon, were elected Members.

Mr. S. Stevens exhibited a species of *Coccidæ* that was causing damage to an India-rubber plant, by spotting the leaves.

Mr. Slater read some notes on the effect of magnetism upon insects, and detailed the process he adopted for his experiments.

Mr. C. O. Waterhouse said that a new collection of British insects for public exhibition was being formed at the Natural History Museum at South Kensington. For some of the more popular Orders there was no difficulty in procuring materials, but for others, such as *Diptera*, *Hymenoptera*, &c., this was not so easy, and he solicited donations of specimens, so as to enable the collection to be made the more complete and representative.

August 5th, 1885.—J. JENNER WEIR, Esq., F.L.S., Vice-President, in the Chair.

Mr. T. W. Hall, of 3, New Inn, Strand, was elected a Fellow.

Mr. Dunning announced that Her Majesty in Council had been pleased to grant a Royal Charter of Incorporation to the Society, which Charter was read by the Secretary. Cordial votes of thanks were unanimously passed to Messrs. Dunning and F. Crisp for their gratuitous services in connection with the acquisition of the Charter. [The Editors of this Magazine consider this auspicious event a subject for congratulation to British Entomologists generally, and hope it will materially tend to further the interests and usefulness of the Society, which now, for the first time in the course of the 52 years it has existed, acquires a legal standpoint.]

Mr. Billups exhibited an example of *Inostemma Boscii*, Jurine, a curious little Proctotrypid, especially remarkable for having a horn projecting from the base of the abdomen over the thorax and head. He also exhibited the egg-case of a Mantid on a tobacco-leaf; and four species of *Chrysis* (*bidentata*, *ignita*, *fulgida*, and *neglecta*) from the burrows of *Odynerus spinipes*.

Dr. Capron exhibited *Phytodietus rufipictus*, a species of *Ichneumonidæ* new to Britain.

Mr. Winston (present as a visitor) exhibited a variety of *Arctia caja*.

Mr. Horner exhibited several rare species of British *Coleoptera*, including *Throscus carinifrons*, *Homalota splendens* and *humeralis*, *Aleochara lygæa*; and a curious variety of *Elater bipustulatus*.

Mr. Coverdale exhibited stems of *Onobrychis sativa*, illustrating the manner in which the larva of *Grapholitha cæcana* feeds.

Mr. Dunning alluded to the death of Prof. H. Milne-Edwards, one of the Honorary Members of the Society.

The following papers were read, viz.:—"On the Columbian species of *Diabrotica*," by J. S. Baly; and "On the Classification of the Australian *Pyralidæ* and *Pterophoridæ*," by E. Meyrick.

Obituary.

Henry Milne-Edwards was born, of English parents, on October 23rd, 1800, at Bruges, then under French rule, from whence his family removed to Paris in 1814, where he studied medicine, attended lectures, took his diploma in 1823, and for a short time practised as a physician in that city. He soon, however, abandoned his profession, and devoted himself to the study of zoology, and especially to that of the lower forms of animal life. In the year 1826, in conjunction with his friend and fellow-labourer, Victor Audouin, then the assistant of Lamarck and Latreille, at the Jardin des Plantes, he commenced an extensive investigation of the anatomy, physiology, and zoology of the invertebrated animals of the Northern and Western Coast of France; the results of which were chiefly published in the "Annales des Sciences Naturelles," and were subsequently collected together in fascicules, in the first of which were introduced two Reports on the "Mémoires presented to the Académie Royale des Sciences," one by Geoffroy St. Hilaire, and a second by Messrs. G. Cuvier and Dumeril.

In 1827, the prize for experimental physiology was awarded to H. Milne-Edwards, by the French Académie des Sciences, where he succeeded F. Cuvier as a Member of the Academy in 1838, in the section of Anatomy and Zoology.

In 1841, on the death of his friend Audouin, he was appointed Professor of Entomology at the Jardin des Plantes, where he took up his residence in the house then recently occupied by Cuvier; and in 1862 he succeeded Isidore Geoffroy St. Hilaire as Professor of Zoology at the Jardin des Plantes, and in a year or two afterwards he was made Assistant Director of the Museum there.

In 1834—1840 appeared a valuable general work by our author on the *Crustacea*, under the title, "Histoire Naturelle des Crustacés," forming three volumes 8vo, as part of the "Suites à Buffon." This still remains the best zoological text book on the class. In 1857—1860, the "Histoire Naturelle des Corallieres" appeared, being the result of a zoological excursion to the coast of Algeria; and, subsequently, the "Recherches anatomiques et zoologiques faites pendant un voyage sur les Côtes de la Sicile," a fine quarto volume, with nearly 100 coloured plates.

Besides these works, and a vast number of detached memoirs, of which the list in the Royal Society's summary extends to more than a hundred items, and which were published, for the most part, in the "Annales des Sciences Naturelles" (the chief zoological periodical in France, commenced in 1824, and which still maintains its rank in French scientific literature), Milne-Edwards prepared several elementary works, which had an enormous circulation; his "Eléments de Zoologie" appeared in 1834, and his "Cours élémentaire de Zoologie," in 1851, these being the precursors of his *opus magnum*, "Leçons sur la Physiologie et l'Anatomie comparée de l'homme et des animaux," commenced in 1851, and only completed in fourteen volumes in 1881.

On the 7th May, 1839, Professor H. Milne-Edwards, was elected one of the Foreign Members of the Linnean Society of London. In 1852 he was also elected one of the ten Honorary Members of the Entomological Society of London; and in 1868 one of the few Honorary Members of the Entomological Society of France.

In 1847, Milne-Edwards was made an Officer of the Legion of Honour, and a Commander of this Order in 1861. In 1856, the "Copley" Medal of the Royal Society of London was awarded to him, on which occasion he came to London to receive it, when the President of that Society observed that "it would be difficult to name any existing naturalist who has prosecuted his researches with success over so very wide a range of investigation."

He died on the 29th June last, leaving a daughter (married to a son of M. Dumas) and a son, Alphonse Milne-Edwards, who has, for some years past, been successfully engaged in the study of *Crustacea*, upon which he has published a number of excellent illustrated memoirs.—J. O. W., Oxford: *August 8th*, 1885.

THE METALLIC GREEN SPECIES OF THE GENUS *COLEOPHORA* (*METALLOSETIA* OF STEPHENS, *DAMOPHILA* OF CURTIS).

BY H. T. STAINTON, F.R.S.

From time to time I am asked by correspondents questions as to some of these species; I will, therefore, note a few details respecting them, treating of them in the following order:—1, *Frischella*, L.; 2, *melilotella*, Scott; 3, *deauratella*, Z.; 4, *Fabriciella*, Vill.; and 5, *alcyonipennella*, Kollar.

1. *Frischella*, Lin., Z., Sta., *trifolii*, Curtis, B. E., fo. 391.—This is the largest and brightest of the group, but I imagine it is in very few collections. I believe there are specimens of the case in Mr. Bond's collection: "long, curved, and black, being formed of silk; it most resembles the case of the larva of *C. conspicuella*" (Ent. Ann., 1861, p. 88).

2. *melilotella*, Scott, Trans. Ent. Soc., London, n. s., V, p. 408, pl. 17, f. 1.—This is rather smaller than the preceding, and though a brilliant insect, is scarcely as glossy as *Frischella*, but I think it extremely probable that captured specimens of this insect may have been recorded as *Frischella*.

The larva of *melilotella* feeds in the seeds of *Melilotus officinalis*, and was first detected by Mr. John Scott in August, 1859, at Stockton-on-Tees.

I received this larva from Mr. Scott on the 11th August, 1859, and nine days afterwards I received the same larva from Frankfort-on-the-Main, where it had been independently observed by my friend Herr G. G. Mühlig—this is a most curious instance of synchronous discovery. The larva feeds in the seeds of the *Melilotus*, using the husk of the emptied seed as a case; at first only a single seed is used, then two are clumsily attached together, ultimately they are so blended as to form a symmetrical cylindrical case.

The larvæ require to be kept out of doors during the winter, as they do not assume the pupa state till the following season is well advanced—some even pass two winters in the larva state, thus sadly retarding the appearance of the imago.

After the perfect insects had been bred towards the end of *June*, 1860, from the Stockton larvæ, Mr. T. H. Allis visited the locality and succeeded in taking a fine series of the insect.

Mr. Farn has since met with the insect at Charmouth, and has very kindly supplied me with specimens from that locality.

3. *deauratella*, Z., Sta., H.-S., Frey.—Much smaller than *melilotella*, and much less glossy; the basal portion of the antennæ more thickened with scales, and the hinder portion of the abdomen of the female more acuminate, reminding one of a *Nemotois scabiosellus*, ♀; is this because she has to deposit her eggs in the seed-heads of clover?

No precise information seems yet to have been published as to the mode of feeding of the larva of this species. Early in August, 1869, I received from Herr Anton Schmid, then at Frankfort, *Coleophora* larvæ in the heads of *Trifolium arvense*, which I believe should be referred to this species. Their cases were cylindrical, rather short, with the mouth slightly turned downwards, and were of a reddish-ochreous colour. When *in situ* they are scarcely to be perceived by the keenest observer.

4. *Fabriciella*, Villers; *spissicornis*, Haw., St., C.; *Mayrella*, Z.—A small, but pretty, species, well distinguished by the antennæ, which are thickly clothed with coppery scales to the middle, and then are sharply annulated black and white.

At one time this insect used to fly in great numbers to my attracting light, and 20 or 30 specimens in various stages of scorched-mutilation might be found each morning on the carpet beneath the gas-burner. At that time I grew a little patch of purple-clover very near the house. Now, I have no such patch of purple-clover, and I never see my little friend *Fabriciella*—may we not here have an instance of cause and effect, and should not the cases of *Fabriciella* be sought in the seed-heads of purple-clover? Very possibly the dealers in clover-seed know more about the larva of this insect than all the entomologists in Europe put together!

5. *alcyonipennella*, Kollar, Dup., Z., Dgl., Sta., H.-S., Frey.—The dullest of the group, with the nearly simple antennæ dark for two-thirds of their length, and then white.

The simple blackish case is common enough on, or rather under, the leaves of *Centaurea nigra* in April and May, and the young larvæ may be noticed in September. It makes glassy blotches on the leaves, which readily catch the eye of the observant entomologist.

From its feeding up in the spring, and producing the imago after so short an interval, it is very easily reared.

Mountsfield, Lewisham:
***September* 12*th*, 1885.**

DESCRIPTION OF A NEW *GELECHIA* FROM OUR SALT-MARSHES: *G. TETRAGONELLA.*

BY H. T. STAINTON, F.R.S.

Exp. al. 5 lines. Head, face, and palpi pale whitish-grey. Anterior-wings pale grey, more or less suffused with dark grey, sometimes entirely dark grey, with four black dots placed in a lozenge form thus: two on the fold, the first of which is not far from the base, and the second about the middle of the fold; nearly vertically over this last, but slightly anterior to it, is the third dot situated on the sub-costal nervure; the fourth dot is placed on the disc in the middle of the wing; this last dot is frequently followed by a second on the disc, half-way between the last named and the hind-margin of the wing; at the hind-margin itself are some small dark dots round the apex of the wing; cilia grey. Posterior-wings grey, with the cilia rather darker.

This insect differs from *G. senectella* in the total absence of any ochreous or brownish tinge, and is rather neater. *Senectella,* though it frequently shows one or two dark spots *along the costa,* scarcely ever shows us any dark marking on the sub-costal nervure.

Taken by Mr. Sang amongst *Artemisia maritima* in salt-marshes near Redcar, in the month of July.

Mr. Sang has noticed that these insects sit with the wings closely appressed to the body, and the head well up. It varies very much in shade of colour, and in one specimen there was an indication of a pale hinder fascia, of which most specimens show no trace.

Mr. Sang writes to me that:—"This species appears to be very sluggish, as I have not seen it on the wing. All I have taken have been by searching among the tufts of *Artemisia maritima,* which are very short and poor, where the insect only seems to occur—nearest to the sea in the estuary of the Tees. I hardly suspect that the larva will feed on that plant, as most likely the moths only frequent it for shelter. It is the only plant above the very short grass. The moth is sluggish in the net, even at dusk, and looks—when alive—exceedingly narrow at the head end, from the very narrow thorax, and from the wings being so closely appressed for two-thirds of their length. The wings have the appearance of being greasy along the dorsal margin when closed, owing to that part being without any lighter scales. This is the first occurrence of the insect since 1881, when I took three examples."

Mountsfield, Lewisham, S.E.:
September 15th, 1885.

Chærocampa celerio in Staffordshire.—On the 12th inst. I caught at Colton, Staffordshire, a fine specimen of *C. celerio.*—W. Buckley, 27, Wheeler's Road, Edgbaston: *September 20th,* 1885.

ON THE *HYPONOMEUTA* OF THE APPLE.

BY CHAS. G. BARRETT, F.E.S.

The apple trees on this side of London have been terribly infested this year with the larva of a *Hyponomeuta*, which ought to be the continental *malinellus*, but is here held to be merely a form of the common *padellus*. I obtained some larvæ and a large number of pupæ from apple trees at the end of June. The larvæ were about the size of those of *cognatellus*, dark greenish, with the usual conspicuous black spots, spinning webs in the usual loose fashion of the genus among the apple leaves. The pupæ were spun up in little clusters of cocoons, laid closely side by side in the hollows of curled-down apple leaves, and were, therefore, very easily collected from the trees.

A few days later, I found ordinary larvæ and pupæ of *padellus* in a hawthorn hedge, the larvæ smaller and darker than those on apple, and the pupæ in cocoons suspended *upright*, and singly, in the loose silken web.

The moths from apple began to appear on July 8th, and came out rapidly, most of them having emerged by the 15th, on which day the first of those from hawthorn appeared.

Nearly all the moths from the apple-pupæ were larger than those from hawthorn, and their tendency is decidedly to a lighter colouring, but while some of them are of as clear a silvery white as *cognatellus*, the great majority are clouded more or less with grey, and some are entirely grey, being of the precise shade of colour of the normal form from hawthorn, which varies in the opposite direction; the majority being unicolorous grey, but many specimens clouded with silvery-white, and occasionally a specimen is entirely of the latter colour.

The dots in the two forms are identical in position, both on the thorax and the fore-wings, and vary in number in the same manner, except that in the apple-form the majority have a cluster of small dots, composed of two irregular lines, towards the apex of the fore-wings, and the minority have but a single row, while in the hawthorn feeder the majority have but the single row and the minority the cluster. Both agree in the white colour of the head and the unicolorous dark hind-wings.

Thus it appears that the two forms differ in the larva, the mode of pupating, the time of appearance, and to some extent in the colouring of the imagines. Yet there seems to be no reliable character by which the latter can be separated—indeed, I am very sure that when mixed together it would be impossible to separate them all—and it seems probable that the differences are all rather in the nature of variations than of specific distinctions. Yet *malinellus* is described as a distinct species by Zeller, Freyer, Herrich-Schäffer, Frey, and Heinemann.

Types received some years ago from the late Professor Zeller are not larger than ordinary *padellus* from hawthorn, but are all of a pure silvery-white, without any grey clouding [and this is always the character of any continental *malinellus* I have seen.—H. T. S.]. Otherwise, they agree exactly with our apple-feeding form.

68, Camberwell Grove, S.E.:
September 14*th*, 1885.

REPLY TO MR. BUTLER'S PAPER "ON THE DISTINCTNESS OF *AULOCERA SCYLLA* FROM *A. BRAHMINUS*."

BY LIONEL DE NICÉVILLE, F.E.S.

In vol. xxi, p. 245, of this Magazine, appears a paper bearing the above heading, in which Mr. Butler comments on the opinion expressed by Major Marshall and myself in "The Butterflies of India," to the effect that *Aulocera Scylla*, Butler, is not specifically separable from *A. weranga*, Lang, = *A. brahminus*, Blanchard.

After quoting our remarks, Mr. Butler writes:—"It must be borne in mind that when writing the above, neither Major Marshall nor Mr. De Nicéville had examined the type of *A. Scylla*; when the latter gentleman saw it a few months ago, he jumped to another hasty conclusion and decided that it was nothing but an under-fed specimen of *A. Werang* (*sic*)." But this second conclusion, even if hasty, is identical with the first; my note made in writing at the time was that "*A. Scylla* is nothing whatever but *A. brahminus*," or, in other words, a subsequent examination of the type confirmed the conclusion I had formed from the description. And I can find nothing whatever in Mr. Butler's recent paper to disprove it; he merely attempts to discredit my judgment by unsupported assertions about my jumping to hasty conclusions.

I should not have noticed this paper, however, solely on account of the extremely objectionable tone of it, but the lamentable ignorance displayed in the latter part of it, and the extraordinary assertion that because *A. Scylla* has been found in the Kutti Tangti Valley, 11—12,000 feet, "It is, therefore, clear that the locality 'Silhet' was, at any rate, if not quite correct (which remains to be proved), by no means so far out as Messrs. Marshall and De Nicéville imagined," ought not to remain on record uncorrected.

The Kutti Tangti Valley is in N.E. Kumaon, in the centre of the Himalayan range, at a great elevation, in the neighbourhood of the eternal snows, with sparse vegetation and a dry bracing climate, and zoologically within the Palæarctic region.

Silhet is a sub-tropical plain, lying about 600 miles further east and to the south, and bounded on the north and south-east with low hills, on which snow never falls, but on which the heaviest rainfall in the world descends; it is little raised above the level of the sea, the vegetation is luxuriant and dense, the climate oppressively hot, and the fauna that of the Indo-Malayan region. And to argue that because a butterfly belonging to a Palæarctic genus is found in the central Himalayan Alps, there is a probability of its also being found in Silhet, is scarcely scientific.

There is nothing new in the fact that the butterfly which Mr. Butler calls *A. Scylla* is found in the mountains of N.E. Kumaon; it occurs at suitable elevations throughout the Himalayas, certainly from Kashmir to Sikkim, possibly further; but there is no authentic record, so far as I am aware, of any species of the genus being found beyond the limits of the Himalayan range, and, as a matter of fact, a zoologist acquainted with the geography of the Indian region would as soon expect to find a giraffe on a Scotch moor as to find an *Aulocera* in Silhet; it *might* occur, but it is not likely.

The question whether *A. Scylla* is or is not distinct from *A. brahminus* is a matter of opinion, and must remain so until the life-history of the insect is fully known; Major Marshall and I formed one opinion on the spot, after careful study of large numbers of the perfect insects, and of their habits and haunts; Mr. Butler has formed his thousands of miles away, with a scanty supply of specimens, and misled by a label, the untrustworthiness of which he must have perceived if he had had any acquaintance with the region he was dealing with, and the verdict between the two I must leave to the readers of this Magazine.

Mr. Butler says that "few things can be more detrimental to the study of any branch of science than guessing;" but querying will do little harm if confined to matters of opinion, and not allowed to degenerate into dogmatism; far worse than guessing are attempts to meet honest queries by sneers, and if, as Mr. Butler asserts, *A. Scylla* is a good and constant local form, he will earn the gratitude of all entomologists in this country at any rate, if he will define the locality to which it is confined.

As regards the name given by Colonel Lang, I need only remark that the type specimen is labelled "*weranga*" by Colonel Lang himself, and is so quoted by him in vol. v, p. 35, of this Magazine, and also by Mr. Moore at p. 266, n. 14, of the Proc. Zool. Soc. of London for 1874, and elsewhere, and that we adhered to this form by Colonel Lang's advice.

I propose to comment on Mr. Butler's remarks on seasonal variation at a future date; the remarks in his concluding paragraph scarcely need notice from me.

In conclusion, I would remark that more confusion in Indian entomology has been caused by the publication of erroneous localities without due investigation by men whose names carry weight among entomologists throughout the world, than by any other form of carelessness; the localities are accepted by entomologists of other countries who have no means of checking them, and not only are the true facts obscured, but the false theories based on the blunders obtain a wide circulation.

Indian Museum, Calcutta:
August 19*th*, 1885.

DESCRIPTION OF THE LARVA OF *PTEROPHORUS BERTRAMI*.

BY GEO. T. PORRITT, F.L.S.

About the middle of July in last year, Mr. James Hinchliffe, then of Alva, now of Tillicoultry, sent me a few eggs of this species. They hatched out directly, and I at once placed them on a potted plant of Yarrow. Unfortunately, the plant died, and I could find no trace of the larvæ; but, on writing Mr. Hinchcliffe of the misfortune, this summer he very kindly made a search for the larvæ, was at once successful in finding them, and I had the pleasure of receiving a supply from him on the 25th of June. They were in three stages of growth, though most were in the middle stage, or apparently about half grown.

They were of the usual form of larvæ of this genus, though perhaps a little more slender than some species; body cylindrical, stoutest in the middle, tapering towards the extremities; head small and polished, considerably narrower than the second segment; segmental divisions well defined, the skin rather glossy.

When about a quarter of an inch long, the ground colour is pale greyish-olive, but this is almost hidden by dark purplish-brown dorsal and sub-dorsal stripes, which give the larva a very dark appearance;

head very pale straw-colour, marked with smoky-brown, the ocelli black, and the mandibles reddish-brown; frontal plate and anterior legs polished black.

In the next stage, that is, when about three-eighths of an inch long, it has become considerably lighter in colour; the ground is glaucous-green, the dorsal and sub-dorsal stripes purple, but more interrupted, and not so wide as in the earlier stage; head of the same pale straw-colour, but not so clouded with darker, though the ocelli are still black, and the mandibles reddish-brown; the frontal plate is gradually becoming pale like the head, the black being confined to the front in some specimens, in others to a black edging, more or less broken all round. Ground of the ventral area and the prolegs uniformly glaucous-green, the anterior legs now ringed with black only.

In the adult stage, about half to five-eighths of an inch, the larva has a still paler appearance. Ground-colour bright pea-green; head very pale straw-colour, faintly tinged with green, the large ocelli intensely black, and consequently very conspicuous, the mandibles reddish-brown, frontal and small anal plate of the same bright green as the ground-colour; the dark green (slightly brownish anteriorly) pulsating dorsal vessel forms the dorsal stripe; between it and the spiracular region are two greyish-white stripes, on which the small black tubercular spots may be seen; below the spiracles is a still clearer and more conspicuous white stripe; spiracles black.

Ventral surface uniformly of the same bright green of the dorsal area; at the front, and at the base of each anterior leg, is an intensely black spot; and the prolegs are finely margined with black.

Feeds in the shoots of yarrow, apparently preferring the central shoot, and eating downwards towards the root.

It will be noticed from Mr. Buckler's description of the larva of *P. dichrodactylus* (Ent. Mo. Mag., xii, 233), that both species correspond in having three forms of colouring in the different stages of growth, and the resemblance of the adult larvæ particularly, shows the close relationship of the two species; whilst the differences, apart from the food-plants, are sufficiently wide to separate them.

When full grown the larva leaves the shoot, and affixes itself by the tail to the outside of the stem, leaf, &c. The pupa is a little over half an inch long, and exactly of the shape of that of *dichrodactylus* as described by Mr. Buckler, though perhaps a little stouter, as it can hardly be called "slender," the word applied by Mr. Buckler to that species. It has "a longish beak in front, projecting at a slight angle downwards from the head, pointed at the tail; the wing-cases of moderate length, well developed, and the ends of the leg-cases projecting free from the abdomen." The colour is bright pale green, dorsal line darker green, edged on the thorax with white; beak white above, rust colour at the sides; there is also a conspicuous streak of this rust colour on the hind part of the thorax, and the same colour also appears (but more faintly) on the abdominal point, and at the tip of the leg-cases; sub-dorsal line dark green, lateral line white.

Ventral surface pale green, with darker green lines, and the wing-cases with whitish rays.

The first imago emerged July 24th.

Huddersfield:
August 12*th*, 1885.

ON *LEPIDOPTERA* FROM ST. VINCENT.

BY E. MEYRICK, B.A., F.E.S.

The six following species were taken by Mr. Gervase F. Mathew, R.N., at St. Vincent, Cape de Verde Islands, during his visit described in Vol. xviii of this Magazine, and were recently placed by him in my hands for determination; their locality renders them interesting, and the new genus of *Phycididæ* is intrinsically remarkable.

BOTYDIDÆ.

PHACELLURA INDICA, Saund.

ZINCKENIA RECURVALIS, Fab.—This and the preceding species are undoubtedly introduced by civilization, being now almost universal in sufficiently warm regions.

PHYCIDIDÆ.

THYLACOPTILA, *n. g.*

Face with a ridge of scales on each side; ocelli present; tongue well developed. Antennæ in ♂ filiform, evenly ciliated (1), hardly perceptibly sinuate at base, with a large rounded tuft of scales from base of stalk, basal joint swollen. Labial palpi moderately long, obliquely ascending, smoothly scaled, more loosely towards apex, terminal joint short, concealed. Maxillary palpi obsolete. Abdomen in ♂ with loose anal tuft, and a lateral tuft on each side of apex. Middle tibiæ in ♂ considerably thickened, with a brush of stiff hairs above, and a fringe of long fine hairs on inner side; posterior tibiæ in ♂ with a fine projecting pencil of hairs from base above, outer spurs half inner. Fore-wings with veins 4 and 5 closely approximated towards base, 7 absent, 8 and 9 stalked, 10 closely approximated to 9. Hind-wings with veins 2 and 3 almost from a point, 4 and 5 stalked out of 3, 7 out of 6 near origin, anastomosing with 8 to middle: in ♂ with inner margin thickened and longitudinally folded to form a deep pocket-like groove beneath, containing a long pencil of fine hairs, and with a rounded thickened lamellar pad from middle of vein 1*a* above, appressed to marginal pocket, and causing space between to form a groove, which is clothed with loose hairs.

A very distinct genus, probably most allied to *Nephopteryx*.

THYLAC. PAUROSEMA, *n. sp.*

♂. 22 mm. Head, palpi, antennæ, and thorax light greyish-fuscous. Abdomen whitish, lateral apical tufts black. Legs whitish, anterior pair suffused with grey. Fore-wings elongate, posteriorly considerably dilated, costa posteriorly moderately arched, apex obtuse, hind-margin somewhat oblique, straight above, rounded beneath; light greyish-fuscous; veins and costa posteriorly suffusely darker grey; a cloudy dark grey irregular median streak from base, terminating in a small spot at one-third; some white scales, tending to form a cloudy transverse band, beyond one-third; a dark grey hind marginal line: cilia grey-whitish, with numerous grey lines. Hind-wings whitish, semi-transparent, base quite hyaline; a faint grey hind marginal line, darkest round apex; cilia whitish, with a faint grey line.

An inconspicuous species; I understand from Mr. Mathew that this was probably the insect mentioned as bred from the seed-pods of a *Cassia*. One specimen.

CRAMBIDÆ.

EROMENE ——? *sp.*—One specimen of a species perhaps distinct, but extremely similar to some European forms; further specimens would be required to justify its description.

PTEROPHORIDÆ.

TRICHOPTILUS COMPSOCHARES, Meyr.—Five specimens amongst *Chenopodium*; described in a paper recently communicated to the Entomological Society; endemic, so far as known.

AGDISTIS TAMARICIS, Z.—One specimen.

Parramatta, N. S. W.:
June 21st, 1885.

Heliothis peltigera in Yorkshire.—On September 16th I captured, at rest, on the Sandhills at Kilnsea, on the Holderness coast, an exceedingly fine *H. peltigera* just out of the pupa. As the species is quite new to the County fauna, perhaps you may consider the record worthy of insertion in your pages. The identity of the specimen was kindly determined for me by my friend Mr. Geo. T. Porritt.—WM. EAGLE CLARKE, Leeds: *September 17th*, 1885.

SYNOPSIS OF THE BRITISH SPECIES OF *ORTHOPERUS*.

BY REV. A. MATTHEWS, M.A.

I have lately examined with much care the species of the genus *Orthoperus*, and have been greatly assisted in my work by M. de Marseul and Herr Reitter, who have very kindly furnished me with types of all the European species. The following paper contains the result of my investigations so far as the British species are concerned, and I hope that the characters I have given will prove sufficient to enable others to determine for themselves whatever species they may possess.

Orthoperus is a well-defined and easily recognised genus, distinguished from other *Corylophidæ* by its partly exserted head, long incurved anterior tibiæ, and nine-jointed geniculate antennæ, of which the fifth joint is generally much larger than the sixth, and, by its comparative size, often proves a valuable specific character.

The names of the species hitherto found in this kingdom, as far at least as I have had the means of discovering, are the following, viz.:—

Orthoperus Kluki, Wank.
brunnipes, Gyll.
corticalis, Redt.
punctatulus, *sp. n.*
atomus, Gyll.
mundus, *sp. n.*
coriaceus, Rey.
atomarius, Heer.

In the above list I have used the names "*atomus*, Gyll.," and "*atomarius*, Heer," in preference to "*picatus*, Marsh.," and "*punctum*, Marsh." Although those species are designated by the latter appellations in continental collections, yet the descriptions given by Mr. Marsham are so exceedingly vague and indeterminate, that it would be confusing to alter our present nomenclature without actual comparison with the Kirbyan types.

ORTHOPERUS KLUKI, Wank.

The species which stands in our lists under the name of *brunnipes* is known on the continent as *Kluki*. Of both these species types have been kindly sent by M. de Marseul and Herr Reitter; and I find that the *brunnipes* of their collections is rather smaller, and much more oval than our species, which agrees in every respect with *O. Kluki*. The sculpture also is very different. The description given by

Gyllenhal will agree equally well with either species, and hence the confusion has arisen: I think that the best method of ensuring uniformity for the future will be to adopt the continental nomenclature.

Orth. Kluki may be known by its large size, attenuated elytra, black colour, and piceous legs.

ORTHOPERUS BRUNNIPES, Gyll.

In the continental collections the species which bears this name differs from *Orth. Kluki*, as I have already said, in its rather smaller size, perfectly oval form, paler legs and antennæ, and especially in a distinct row of punctures within the basal margin of the thorax.

The only British example of this species is contained in the fine collection of P. B. Mason, Esq., of Burton-on-Trent, and appears to have been taken by the late Mr. Wilkinson, of Scarborough.

ORTHOPERUS CORTICALIS, Redt.

Orth. corticalis is rather smaller than the two preceding, but larger than any of the rest, and may be known by its broadly oval form, pale castaneous colour, and bright yellow legs and antennæ, of which the fifth joint is scarcely larger than the sixth; the anterior tibiæ are unusually long, and much incurved.

Of this species two specimens were found some years ago by myself in Sherwood Forest.

ORTHOPERUS PUNCTATULUS, *sp. n.*

L. c. $\frac{9}{16}$ lin., = 1·12 mm. *Ovalis, modice convexus, nitidus, totus alutaceus, elytris distincte punctatis, castaneus; capite modico; pronoto parvo, indistincte punctato, lateribus marginatis, modice rotundatis, margine ipsâ flavâ, margine basali scutellum versus leviter productâ angulis obtusis; elytris longis, capite atque pronoto parum latioribus et fere duplo longioribus, ad media latissimis, sat depressis, confertim, regulariter et distincte punctatis, lateribus marginatis, apicibus obtusis; pedibus sat magnis, ferrugineis; antennis sat brevibus, ferrugineis, clavis nigris, articulo sexto quinto vix minori.*

Body oval, moderately convex, shining, alutaceous throughout, with the elytra rather closely punctured, castaneous. Head moderate, eyes not prominent; antennæ rather short, ferruginous, with the club black, sixth joint not smaller than the fifth. Thorax small, alutaceous; indistinctly punctured, sides margined and moderately rounded, margin yellow, basal margin slightly produced towards the scutellum with the angles obtuse. Scutellum small, obtusely triangular. Elytra long, a little broader and almost twice longer than the head and thorax, widest near the middle, rather depressed, closely, regularly, and distinctly, punctured, sides margined, apex obtuse. Legs rather large, ferruginous. Under-parts castaneous.

Differs from other species in its intermediate size, oval depressed form, sculpture of the elytra, and short antennæ with a black club, and sixth joint not smaller than the fifth.

Of this species one specimen was found by myself some years ago near Gumley.

ORTHOPERUS ATOMUS, Gyll.

This is the most abundant of the British species, and may be distinguished by its short, convex form, pale castaneous colour, remote and almost invisible punctation, and large yellow antennæ, of which the fifth joint is much longer than the sixth.

I cannot perceive any difference between some specimens which have been sent to me under the names of *Orth. pilosiusculus*, Duv., and *Orth. anxius*, Rey, and the present species; but as I have not yet been able to examine the original descriptions of those species, I cannot speak positively as to their identity.

ORTHOPERUS MUNDUS, *sp. n.*

L. c. $\frac{9-1}{16}$ lin., = ·75–·87 mm. *Latus, rotundatus, sat depressus, aterrimus, alutaceus, haud nitidus; capite magno, distincte alutaceo, oculis prominentibus; pronoto lato, ad basim latissimo, minute alutaceo, impressionibus tribus levibus ad basim notato, unâ mediali et utrinque alterâ laterali, disco impunctato, lateribus rotundatis et marginatis, margine ipsâ dilutiori, margine basali scutellum versus multum productâ angulis fere rectis; elytris capite atque pronoto parum latioribus, sesqui longioribus, prope media latissimis, sat profunde alutaceis, punctis parvis, equidistantibus, striatim dispositis notatis, lineâ suturali impressis, lateribus valde rotundatis, fortiter marginatis margine dilutiori, apice valde rotundato, dilutiori; abdominis pygidio haud exserto; pedibus brevibus, gracillimis, flavis, tibiis anterioribus fortiter incurvatis; antennis sat longis, flavis, clavis nigro-piceis, articulo quinto sexto longiori, haud latiori.*

Body broad, rounded, slightly depressed, deep black, alutaceous, not shining. Head large, minutely alutaceous; eyes large and very prominent; antennæ rather long, yellow, with the club pitchy-black and the fifth joint longer, but not broader than the sixth. Thorax broad, widest at the base, minutely alutaceous, with three faint impressions near the base, one in the middle and one on each side, disc impunctate, sides rounded and margined, with the margin pale, basal margin much produced towards the scutellum, with the angles nearly right angles. Scutellum moderate, obtusely triangular. Elytra rather broader, and one-half longer than the head and thorax, widest near the middle, rather deeply alutaceous, marked with small equidistant punctures arranged in striæ, and an impressed line on each side of the suture, sides much rounded and strongly margined, with the margin pale, apex much rounded and pale. Legs short, very slender, anterior tibiæ much incurved. Under-parts piceous.

Differs from all other species in its rounded and depressed form, large head and prominent eyes, deep black colour, and in sculpture.

This very distinct species was often found by my brothers and myself in a small spot near Weston-on-the-Green, in Oxfordshire, but I have never seen an example of it in any other British or foreign collection which I have examined, nor have we ever met with it in any other locality.

ORTHOPERUS CORIACEUS, Rey.

Orth. coriaceus may be known by its small size, oval and rather narrow shape, piceous colour, small head and thorax, large shallow punctures on the elytra, robust antennæ, and long slender legs.

This species has also been sent to me under the name of *Orth. pilosiusculus*, Duv.

ORTHOPERUS ATOMARIUS, Heer.

The minute size, convex ovate form, deep sculpture, and usually pale castaneous colour, readily distinguish this species from its congeners.

It occurs not uncommonly in damp localities, and also in damp cellars in various parts of the kingdom.

As it seems very probable that the species of this genus, and indeed, of the *Corylophidæ* in general, are much more numerous than those contained in our present lists, I shall feel much indebted to any entomologist who will send me specimens for determination.

Gumley: *August* 31*st*, 1885.

What is the true Chrysophanus Hippothoë of Linnæus?—It appears to me that Pastor Wallengren has rather missed the point of my remarks respecting *Ch. Hippothoë*, which were not intended to prove that the Linnean species had been correctly referred by him to the Swedish fauna, but that the description in no respect corresponded with *Ch. Chryseis*, and could not, therefore, have been made upon that species.

I consider that I do no wrong to the memory of Linnæus when I suggest that a species which had not been taken in Sweden was palmed off upon him as Swedish; on the contrary, this sort of thing is constantly done in England with (so-called) British species, and it shows a beautiful simplicity and innocent faith in one's fellow creatures to allow oneself to be thus imposed upon: on the other hand, if I credit Linnæus with shameful carelessness in his descriptions, I do him a great wrong, and the points which I emphasized in my note upon *Ch. Hippothoë* are of so distinctive a character, that I imagined no one could fail to see the importance of them at a glance. I cannot conceive how Pastor Wallengren, who is one of the most observant Lepidopterists living, can possibly consider that the mere introduction of the species into the "Fauna Suecica" is of more importance that the description itself.

I suppose that nearly a third of the species described by the older authors were recorded as coming from wrong localities; such errors as "Surinam" for "Sumatra," and "India" for "West Indies," being of too common occurrence.—A. G. BUTLER, British Museum: *August* 29*th*, 1885.

Sphinx convolvuli in Regent's Park.—On the morning of Saturday, September 5th, I captured a fine female example of *Sphinx convolvuli* on a paling outside the Zoological Gardens.—FRANK E. BEDDARD, Zoological Gardens, Regent's Park, London, N.W.: *September* 8*th*, 1885.

Sphinx convolvuli in South Devon.—This seems to be common this year; I hear it is abundant over the beds of petunias in South Devon. Are they immigrants or home-bred?—R. C. R. JORDAN, 105, Harborne Road, Edgbaston: *September* 14*th*, 1885.

Colias Edusa, &c., at Portland.—After some years of scarcity, *Colias Edusa* seems this season to be once more comparatively plentiful, at all events, in this locality. The first specimen (a lovely *Helice*, apparently just out of the pupa) was taken on the Chesil Beach on the evening of August 17th, and during the following week, my wife and I obtained a good series in the lucerne-patches on the summit of the Island, which were literally alive with *Pyrameis cardui*, *Lycæna Icarus*, *Satyrus Megæra*, and other common butterflies. Some of the females of *Edusa* are the finest I have ever seen, one in particular having the yellow spots in the black border almost obliterated. On August 24th I caught a good male specimen of *C. Hyale*, the first I have seen alive since 1872.

Sphinx convolvuli has also been commoner than usual, as, during the past week, I have taken eight specimens at petunia flowers, although the weather has been anything but favourable for collecting. On the rocks under the Verne Fort, where a little shelter could be obtained from the boisterous west and south-west gales which have prevailed here, almost without intermission, for the last fortnight, the pretty *Heliophobus hispidus* has occurred in fair numbers, sitting quietly on the grass and herbage after dark, and allowing itself to be readily boxed.—J. J. WALKER, H.M.S. "Cherub," Portland: *September 14th*, 1885.

Lepidoptera on stone walls and rocks.—During a visit to the north-west last autumn I was much interested in observing the insects which rest by preference on the rocks and stone walls with which that district is so plentifully garnished.

At Kendal, *Polia chi* was to be found commonly sitting on the stone walls, and in many instances so posted, against ledges and inequalities, as to be fairly well concealed, or, at any rate, only noticeable by those who looked for them, but on the slopes of the Pennine hills, between Oldham and Huddersfield, where the original grey or whitish colour of the stone walls has become totally changed by the constant action of smoke from the cotton mills of the large towns, and the woollen mills of the villages, this moth becomes so conspicuous that it may be seen fifty yards away, and is, indeed, rather more noticeable than the wall itself. Here one would suppose would be a grand opportunity for the development of the variety *olivacea* and other dark forms, but no such alteration has taken place. I searched for hours for such varieties, and found only one, and that by no means a striking one, although the moth actually varied much in the dark markings on a *white* ground. One specimen I found on the blackened trunk of a tree, but their preference for walls was astonishing, hardly one was to be found on the isolated rocks or rocky hill sides.

On these rocky fragments, however, especially towards the tops of the hills, *Oporabia filigrammaria* was common, and charmingly variable, and from its grey colour would seem to be admirably adapted for concealment while at rest. But this was by no means the case. Every moth could be seen at a considerable distance. The glossy brightness of their fore-wings made them as distinctly visible on the dull grey rocks as though they had been white. Even those which were sitting on the heath required no searching for, they were quite visible. On another hill, where there were no rocks, but plenty of stone walls, several specimens, larger and whiter than those on the rocks, were found sitting on the *blackened ground*, sheltered by slight inequalities. They might *possibly* have been passed over by a *very* careless observer as glossy pebbles.

A few *Larentia cæsiata* were also to be found on the hills, but generally on the high rocks, and quite conspicuous.

I searched long and almost fruitlessly for *Cloantha solidaginis*, but at last found two specimens on rocks. They approached more closely to the appearance of the dark stone, and, therefore, I suppose elevated themselves on their fore-legs into as prominent and striking a position as possible.—CHAS. G. BARRETT, *September*, 1885.

Curious performance of a Noctua.—While on the Pennines, I noticed a very curious freak on the part of *Celæna Haworthii*. According to the usual restless habit of the species, individuals were to be seen from time to time in the afternoon buzzing about the heath bloom, dashing hastily away when disturbed, and suddenly disappearing—which disappearance, by the way, was effected by settling on a tuft of *Eriophorum vaginatum*, and running down underneath it to near the ground—and, as sunset approached these restless specimens, all males, became more numerous, until just before dusk they were to be seen darting in every direction over the moors with headlong speed. But one evening during their period of greatest activity, I noticed two or three specimens to be exceedingly interested in some large tufts of *Eriophorum*, so that they were easily caught. Before these were boxed, more came, and so on until I had secured as many as I cared for, and set myself to find the—supposed—concealed female. But the mythical female could not be found! The tufts were searched first carefully, then thoroughly, meanwhile the males were still coming, running about the bare peaty soil between the tufts, running over my hands even, but though I pulled the tufts to pieces, and dug up the surface of the soil, no female could be found, nor could the males be deterred from their investigation of the ground. Darkness came on so rapidly, that I was compelled to leave them thus occupied, lest I should lose my own way in the increasing gloom. Next time I visited the spot at the same hour no interest whatever was taken in it by the moths. Females I found sitting on the top of heath twigs and other conspicuous places, and can only suppose that the males must have been attracted by pupæ very near to emergence, which in the twilight I was not able to find.—ID.

Food of Peronea caledoniana, Steph.—This species was extremely abundant on the Pennine Hills during my visit—worn on the lower slopes, but in fine condition towards the summits—and always among *Vaccinium myrtillus*, which, moreover, showed abundant traces of the action of the larva. It seems a pity that a larva so plentiful as this must be in July should not be obtained and carefully described. The moth is considered by Wocke as merely a variety of *ferrugana*—a view which is, I think, quite untenable.

Grapholitha geminana was also flying about its food-plant, and, I think, that this same plant is the principal food of the curious small forms of *Larentia didymata* and *Hypsipites elutata* so common here.—ID.

On the clothing of the pupæ in the genus Hyponomeuta.—Long ago Mr. Henry Doubleday called my attention to the fact that the denseness of the pupal shroud varied in different species of this genus; but lately I heard from Heer P. C. T.

Snellen, of Rotterdam, the very curious fact that the pupæ of the willow-feeding *H. rorellus* have no separate cocoons at all, but are suspended perfectly naked in the main larval web.—H. T. STAINTON, Mountsfield, Lewisham, S.E.: *Sept. 15th*, 1885.

Note on Pulsation in the larvæ of Acronycta psi.—It may be for want of close and accurate observation on my part, but the physiological phenomenon I saw to-day was quite new to me, and to the best of my belief I have not seen it recorded. It is this, a caterpillar of *Acronycta psi* was brought to me to-day for identification, I was informed by the bringer that there was also in the box a small red maggot, in looking for this maggot with a pocket lens, the caterpillar remaining perfectly still on the side of the box, I observed, with the aid of the lens, that a regular pulsation was going on in this caterpillar, and viewing it in profile as I did, the movement or pulsation was very distinct. This process goes on in a small hump, thickly set with white hairs on the dorsal line at the posterior end of its body: the gradual rising and falling of this tuft rendered the process conspicuous under the lens. I took out my watch and timed the pulsations, they were from 48 to 52 per minute. I drew the attention of the gentleman who brought the caterpillar, and he had never seen the like of this before. This phenomenon may not be new, but as I have never seen it recorded, I thought it better to make a note of it at once, and as the caterpillars of this moth are easily procured, it being a generally distributed species, there can be no difficulty in verifying this.—EDWARD PARFITT, Exeter, *August 10th*, 1885.

[We presume it is the spot at which the pulsation was so distinctly visible that our correspondent considers of interest. The "pulsating dorsal vessel" (or heart) is a term constantly used by describers of larvæ, and any text book on the anatomy of Invertebrates details the structure and process.—EDS.]

Nepticula assimilella, Zell., a species new to Britain.—In October, 1883, I found some empty mines, and in September, 1884, a few larvæ of this species on *Populus tremula* in Abbott's Wood. From the latter I had the pleasure of breeding two moths in June last. A description of the imago is given on p. 12 of vol. 1 of "The Natural History of the Tineina." Herrich-Schäffer's figure 840 is a good representation of the specimens I have bred; but Mr. Stainton, who has kindly examined one of the moths from Abbott's Wood, informs me that the species is variable and widely distributed in Europe.—W. H. B. FLETCHER, Fairlawn, Worthing, Sussex: *September 12th*, 1885.

Strange locality for Carabus monilis.—A friend of mine mentioned to me that at Donard, in Co. Wicklow, the people, when speaking about digging for water, would say that they "went down to the clocks and got no water." The same saying exists I am told about Armagh. "Clocks" are beetles, and the depth spoken of varied from 20 to 30 feet. I asked my friend to get me specimens of these "clocks," also whether there were many deep cracks in the ground. The "clocks" proved to be *Carabus monilis*, and it appears that there are deep cracks about Donard. I can only account for the appearance of the beetles at such a depth by the supposition that they descended into these deep cracks in search of prey, and either stayed there of their own accord, or got caught in some way.—W. F. JOHNSON, Armagh: *September 15th*, 1885.

Experiments with Bruchus-infested beans.—Having received, in the early part of the present year, a packet of seed beans, a large proportion of which were infested by *Bruchus rufimanus*, I determined to sow a quantity of the damaged seed in order to ascertain the true extent of the mischief wrought by the beetles. I therefore selected twenty beans, three of which had each been perforated by three weevils, five by two, and twelve by one only, and sowed them under the most favourable conditions for their growth and general welfare. In about a fortnight the young plants appeared, seemingly in no way the worse for the injury received by the seed. The growth was strong and vigorous, and the condition of the plants all that could be desired. When the time for fruition came round, however, a great change took place. The blossoms were scanty and small, the foliage faded and withered, and in several cases the plants died off without producing a single pod.

The first three plants, or those raised from seed pierced by three weevils, were naturally the least productive. One of these was altogether barren, while the remaining two bore but three pods between them, none of which arrived at perfection. The next five, grown from seed tenanted by two beetles only, were slightly more fruitful, bearing in all six pods, of which five reached their full growth. Two of these five plants, however, were barren. Upon the remaining twelve, the seed of which had but one perforation, I counted twenty-three pods, not more than ten of which arrived at maturity. Only one plant of this latter group was entirely unfruitful. It will thus be seen that the twenty plants bore among them but thirty-two pods in all, of which less than one-half came to perfection. The bean in question, I should mention, was not one of the most freely-bearing varieties, six pods being the average yield of each plant. The difference, however, between the produce of the infested seed and of that, sown at the same time, which was free from the weevil, proved beyond question that the presence of the beetle is highly prejudical, not to the germinating qualities of the seed, which appear to be uninjured, but to the reproductive capabilities of the adult plant.

A striking feature in connection with the above experiment was that the plants raised from weevilled seed, with one single exception, altogether escaped the attacks of *Aphis rumicis*, from which scarcely another plant in the garden was free. From this I infer that the sap of the weakened plants was of too deteriorated a character to satisfy the fastidious tastes of the "colliers."—THEODORE WOOD, Freeman Lodge, St. Peter's, Kent: *August* 21*st*, 1885.

Further note upon Adelops Wollastoni and Anommatus 12-*striatus.*—Since my previous note upon the subject (Ent. Mo. Mag., xxi, 256), I have met with these two insects in some abundance, by searching the decaying remains of seed potatoes when the plants were taken from the ground. *Adelops* was by far the more plentiful, as between July 15th and August 1st I took above one hundred specimens, while *Anommatus* was represented by sixteen examples only. Absence of sight seems but a very small deprivation to the former species, which runs with great swiftness, and eludes the various obstacles in its path with perfect ease. How it does so I could not ascertain, but, although I made repeated experiments on the subject, I never once saw it come into contact with the needles, &c., which I placed immediately in front of it. *Anommatus* is far more sluggish, and is easily overlooked in the semiliquid matter to which it clings, and which it greatly resembles in colour. It is rather curious that a substance which is so evidently sought after by these two beetles should not be attractive to a greater number of species. I found but four in all, namely, *Falagria thoracica*, which was tolerably plentiful, *Oxytelus insecatus*, of which I took but five examples, and the two already mentioned. Other collectors may possibly meet with greater variety.—Id.

Note on Batophila ærata, Marsh.—I cannot find any notice of this insect as an injurious species. Here it has been very destructive this season, feeding upon the leaves of the raspberry, and in some cases reducing them almost to skeletons. The young plants were those most affected; the more mature were comparatively free.—Id.: *September* 10*th*, 1885.

Coleoptera at Rainham, Surbiton, &c., in 1884—85.—During the last year I have made several excursions with Mr. Cripps in the neighbourhood of London. Among our captures some of the following may perhaps be worth recording:—

Stenolophus teutonus, *Ceuthorhynchus campestris*, *Asclera cærulea*, *Grammoptera tabacicolor*, *Telephorus lateralis*, *Anthocomus fasciatus*, *Cleonus nebulosus*, *Cœliodes subrufus*, *Tanymecus palliatus*, *Telmatophilus typhæ*, *Gymnetron beccabungæ*, *Erirhinus festucæ*, *Malachius pulicarius*, and *Lina populi*. I may also mention *Saperda carcharias*, of which insect three specimens were brought to me from Southend, and *Gibbium scotias*, which I found in the City.

We particularly worked the genus *Donacia*, of which our captures in Surrey were as follows:—*D. bidens* and *dentata*, Esher, September; the latter also from Chobham. *D. sparganii*, Esher; one specimen from *Sparganium*, August. *D. sagittariæ*, The Wey, Moorparks, Farnham, July. *D. lemnæ*, Farnham and Sunbury, July. *D. thalassina*, Esher and Farnham, common on rushes, May to July. *D. linearis*, *semicuprea*, and *sericea*, common, as a rule; the latter, however, rather scarce this year. *D. typhæ*, Esher and Farnham, on *Typha latifolia*, June and July. *D. menyanthidis*, Esher, very local, on a species of reed, June and July. *D. comari*, Esher, four specimens, July.—G. A. Lewcock, 40, Oxford Road, Islington, N.: *September*, 1885.

Reduvius personatus at Lincoln.—In July last I found a specimen of this Hemipteron on a sack in Lincoln: it has not, I believe, been before recorded from this locality.—H. T. Sims, Lincoln: *September* 15*th*, 1885.

Hemiptera at Lewisham.—During the month of September last year I found a good many examples of *Idiocerus cognatus* on a white poplar tree here, but, with two exceptions, all were females (*cf.* Ent. Mo. Mag., xxi, 127). This year, during August (but not since) I have taken several males from the same tree; from this I conclude that August is the honeymoon of the species, that in September, as a rule, the husbands having become superfluous have perished, and that only a republic of widows remains,—real *feræ naturæ*, for instead of showing any kind of mourning, their colours are brighter than in their nuptial time.

On the same poplar I saw a few *Phytocoris distinctus* taking long courses with the utmost rapidity up the trunk, ultimately ending their exercise in a crevice of the bark, into which they squatted closely, and by their black colour were difficult to distinguish from their "environment," as the covert would be termed in the modern phraseology. The species was first detected at Blackheath on *Populus alba*, and this tree seems to be its special habitat. *Ph. tiliæ*, found resting on the dark bark of the same tree, was by its light colour rendered conspicuous.—J. W. Douglas, 8, Beaufort Gardens, Lewisham: *September* 10*th*, 1885.

Hymenoptera at Chobham in August.—Although I have not found this year a good one for *Hymenoptera* on the whole, still I was fortunate enough in one morning's collecting at Chobham to secure several species worth recording. They were all taken on the common, near what is known as Burrow Hill.

Myrmica sulcinodis, Nyl., 1 ♀ running on the ground; this is the only time that I have met with the ♀ of this species.

Methoca ichneumonides, Latr., 1 ♀ running on the ground.

Pompilus chalybeatus, Schiödte, ♀ on a bare sandy spot.

Mimesa bicolor, Jur., rather commonly, together with the rarer *M. unicolor*, V. de L., but I only obtained females of either species. Both of the black species have now occurred at Chobham, and although so very much alike, are abundantly distinct structurally; the raised lines on the under-side of the 9th and following joint of the antennæ in the ♂, and the shining dorsal apical segment of the abdomen with its strong lateral carinæ in the ♀, at once distinguishing *Dahlbomi*, Wesm., from *unicolor*, V. de L.

Crabro scutellatus, Schev.—Of this rare species I took three females flying about over the sand. I did not recognise it at the time, or should have tried to get more. I have already recorded the ♂ from Chobham, having captured two in 1878, but from that time to this I have never met with either sex, but Dr. Capron has taken it at Shiere.

Andrena argentata, Sm., males common, flying over the sand close to the ground and very difficult to secure. I only met with two females.

Nomada alboguttata, H.-S.—Of this pretty little species, which is a parasite of the above, I obtained two males and four females. Its flight is very similar to that of the *Andrena*, but its bright orange coloured body will distinguish it, even while flying. I may here remark that I have looked for *Andrena lucens*, Imh., every year since I first captured it in 1882 on Burrow Hill, and although I have been in the exact spot at the same season of the year several times, I have never again seen it. I took originally three males in July, 1882, and on the Bank Holiday in August I visited the spot, it was a very cloudy day, but I obtained a single female during a short gleam of sunshine on almost the same plant of *Erica* on which I had taken the males, and it does seem very strange that year after year one should search the locality carefully and not be able again to meet with it.

I hope other Hymenopterists will be able to give a better list of captures this year than I am; the weather has been so favourable that one would have expected *Hymenoptera* to be unusually abundant.—Edward Saunders, St. Ann's, Mason's Hill, Bromley, Kent: *September* 15*th*, 1885.

A SYNOPSIS OF THE BRITISH SPECIES OF *CIMBICIDINA*, *HYLOTOMINA*, *LOPHYRINA*, AND *LYDINA*.

BY P. CAMERON.

(*Concluded from page* 85.)

LOPHYRINA (vol. i, p. 65).

The *Lophyrina* contain only two European genera :—

Lophyrus has an open lanceolate cellule with an oblique cross nervure; the calcaria membranous at the apex; and the antennæ with a double row of pectinations in the ♂.

Monoctenus has the lanceolate cellule contracted in the middle; the calcaria not membranous, and the antennæ in the ♂ with only a single row of pectinations. It differs also from *Lophyrus* in having the fore lobes of the metanotum well developed.

LOPHYRUS, Latr.

SYNOPSIS OF THE SPECIES.

Females.

1 (2) Antennæ 23-jointed; head, thorax, abdomen, and legs, red; metathorax and base of abdomen black .... *sertiferus*, Fourc. (= *rufus*, Kl.).
2 (1) Antennæ 19—20-jointed, head and thorax more or less black.
3 (4) Seventh abdominal segment deeply incised in front of saws; antennæ 18—20-jointed, femora more or less, and head, black .... *pini*, L.
4 (3) Seventh ventral segment not incised in the middle; antennæ 18—19-jointed; femora not marked with black.
5 (6) Antennæ 19-jointed; head entirely black .... *frutetorum*, Kl.
6 (5) Antennæ 18-jointed.
7 (8) Calcaria simple, meso-, metanotum, and back of abdomen, black, head entirely black .... *pallipes*, Fall.
8 (7) Calcaria dilated; head and thorax testaceous; marked with black.
9 (10) A fascia across the vertex; mesosternum broadly black; abdomen testaceous, with black transverse bands on the back .... *virens*, Kl.
10 (9) No fascia on vertex; mesosternum without black; dorsum of abdomen entirely black .... *dorsatus*, Pz.

Males.

1 (2) Antennæ 23-jointed; legs and ventral surface red in the middle; thorax and abdomen smooth, shining, impunctate.
2 (1) Antennæ not 23-jointed; thorax punctured .... *sertiferus*.
3 (4) Femora, coxæ, and trochanters, black; stigma piceous, black at the base ... *pini*.
4 (3) Coxæ and trochanters partly, and femora entirely, testaceous.
5 (6) Accessory nervure appendiculated close to the apex; antennæ 18-jointed, abdomen testaceous .... *pallipes*.
6 (5) Accessory nervure appendiculated a little beyond the middle, abdomen reddish.
7 (8) Pronotum and mouth entirely black .... *frutetorum*.
8 (7) Pronotum not entirely black.
9 (10) Pronotum almost entirely yellow; antennæ 21-jointed.............. *virens*.
10 (9) Pronotum with only a narrow testaceous line; antennæ 17—20-jointed... *dorsatus*.

SECTION I.

Accessory nervure in hind-wings received a little beyond the middle; head and thorax strongly punctured.

A. Inner spur on the posterior tibiæ dilated into a leaf-like expansion; a more or less clearly defined fascia across the vertex; antennæ 23-jointed = *virens* and *dorsatus*.

The ♀ of the latter species may be known from the same sex of *virens* by there being no fascia over the antennæ, there being only a small dark space surrounding the ocelli, by the under-side of the thorax bearing no black, and by the scutellum being much less strongly punctured. The ♂ may be known from *virens* ♂ by the spots on the vertex, by the back of abdomen being entirely black, the under-side, too, being not red as in *virens*; the antennæ are more slender, the last two joints are distinctly shorter than the preceding, while in *virens* the last three are of nearly equal length, and considerably thicker.

B. Hind spurs not dilated, simple.

a. Seventh ventral segment not incised, oblong; legs, for the greater part, whitish-yellow; abdomen yellow, broadly banded with black = *frutetorum*.

b. Seventh ventral segment in front of saw with a triangular incision; broad, wide, for the greater part black; legs black at base; femora (especially the posterior) more or less black; antennæ 19—20-jointed = *pini*.

SECTION II.

Accessory nervure appendiculated close to the apex; body smooth, shining, almost impunctate; abdomen long, cylindrical; the 7th ventral segment entire (*sertiferus*), or slightly incised (*pallipes*); claws cleft (*sertiferus*), or simple (*pallipes*), = *sertiferus* and *pallipes*.

OBS.—I have found, in Inverness-shire, a larva on juniper which agreed very well with the description of that of *Monoctenus juniperi*, but unfortunately failed to rear it. From its wide distribution on the continent, I have no doubt this species will, before long, be discovered in Britain. The imago should be looked for in May.

LYDINA (vol. i, p. 65).

We have only two genera in Britain belonging to this sub-family, namely:—

Pamphilius, Latr. (= *Lyda*, Fab.), with three spines on hind tibiæ, and with setaceous, simple-jointed antennæ; and

Megalodontes, Latr. (= *Tarpa*, Fab.), with two closely situated spines on tibiæ, and the antennæ with the joints dentate, and never more than twenty-two in number.

MEGALODONTES.

SYNOPSIS OF THE SPECIES.

1 (2) The appendages of the antennæ equal in length to two of the joints; antennæ black or testaceous at the base; mesonotum with only two, or no, yellow marks ....*Klugii*, Leach.

2 (1) The appendages equal to one of the joints, and yellow at the base.

3 (4) The marks on thorax and abdomen clear bright yellow; mesonotum with four marks; antennæ 17-jointed, yellow at base; the 2nd abdominal segment marked with yellow ....*cephalotes*, Fab.

4 (3) The marks on thorax and abdomen white; mesonotum with two or no marks; antennæ 15—17-jointed; the base testaceous or bluish; the 2nd abdominal segment without any mark ....*plagiocephalus*, Fab.

KLUGII, Leach, = *spissicornis* and *pectinicornis*, Klug.—The coloration is variable; the mandibles are brownish or black; the frontal spots vary in size; the band on vertex may be continuous or interrupted in both sexes; the tegulæ may be yellow wholly or in part only, or may be entirely black; the spots on mesonotum may be absent, as may be also the lateral spots on the two basal segments of the abdomen. The coloration of the antennæ varies also, but the flabellations would appear to be always black. The ♂ has five of the ventral segments yellow; the 4th is much the widest above, this being also the case in the ♀. The length of the flabellations readily separates *Klugii* from the other species.

CEPHALOTES, Fab., = *Panzeri*, Leach; *plagiocephala*, Fab. (pl. vi, f. 10, vol. ii).—As with the other species, the colour varies. Generally the markings are white, but occasionally (and especially on the abdomen) yellowish. The tegulæ are occasionally black; there are seldom spots on the sides of the basal abdominal segment in the ♀, one is found usually on the third segment in the ♂, which has also the bands on the 5th and 6th narrower than in the ♀; and also the ventral segment broadly white; in the ♀ there are usually only two of the ventral segments banded with this colour. From *cephalotes* (which it resembles in having the flabellations not longer than the joints) it may be known by the white colour of the markings, by the thorax having, at the most, only two marks, by the 2nd and 3rd segments not having yellow marks at the sides, and by the wings being yellowish-brown almost throughout.

I introduce this species as British on the authority of a specimen in Shuckard's collection, bearing a label marked "from the British Collection, Brit. Mus., Ap. 16/42." It was named "*Panzeri*," but not on the label itself. I am not aware of any records for the other species besides those given by Stephens.

PAMPHILIUS, *Latr.*

SECTION I.

Anterior tibiæ with a spine; calcaria bifid, with a small tooth below the apical one; vertex without sutures, or with them very thin; the central region not being separated from the sides, but continuous with them; sub-costal nervure furcate beyond the middle; transverse brachial nervure obsolete.

The group of ERYTHROCEPHALUS.

Body blue or violaceous, with the head in the ♀ red, wholly or in part; wings violaceous; antennæ long, 25—32-jointed, the 3rd joint as long as the three following together.

1. PAMPHILIUS ERYTHROCEPHALUS, Linn. (pl. vi, f. 3, vol. ii).

The group of STELLATUS.

Head and thorax black, spotted with yellow; abdomen black at base and in middle, the sides and apex reddish. Antennæ as long as the body, 25—35-jointed, 3rd joint as long as the following two united.

2. PAMPHILIUS STELLATUS, Christ.
= *pratensis*, Fab., *nemoralis*, Thoms., ?, Linn.

I am not sure that this is *nemoralis*, Linn., and therefore, do not adopt that name. In the Linnean collection, *nemoralis* is represented by *Nematus fallax*, Lep.; it is not, I think, the original type, but one probably inserted by Sir J. E. Smith. Zaddach refers *nemoralis*, Lin., to *punctata*, F.

SECTION II.

Anterior tibiæ without a spine: sutures on vertex deep, so that the central part is distinctly separated from the sides, and more or less from the front; claws bifid; transverse brachial nervure present.

The group of FLAVIVENTRIS.

Head, thorax, and abdomen black above, the sides, legs, and more or less of face, yellow. Antennæ 24-jointed, the 3rd joint as long as the three following united; sutures on vertex not very deep, or distinct; head between antennæ projecting, bluntly keeled; sub-costal nervure broken off beyond the transverse costal nervure; stigma black, wings usually with a smoky fascia in the middle.

This is a very distinct group, and is, to some extent, intermediate between i and ii, inasmuch as the sutures on vertex are not so well developed as in the following groups, yet the lateral furrows are clearly enough defined. The wedge-shaped form of the front is peculiar, as is also the manner in which the sub-costal nervure is broken off beyond the middle.

3. Pamphilius flaviventris, Retz. (pl. vi, f. 5, vol. ii).
= *pyri*, Schr., = *fasciata*, Curt.

The group of SYLVARUM.

Head and thorax pale ochreous, with numerous black spots; metathorax and abdomen black above. Antennæ 19-jointed, shorter than the abdomen, 3rd joint a little longer than the following two together; head broader than thorax; lateral sutures on vertex very deep and broad, reaching to the antennæ, transverse suture not so broad nor so deep, but still clearly defined.

This is a group of small extent, but well defined by the broad and flat head, short antennæ; by the pale ochreous head and thorax, which bear more black markings than in any other species; and by the fulvous tinted wings.

4. Pamphilius sylvarum, Stephens (pl. vi, f. 4, vol. ii, ♀).
= *fulvipennis*, Zad.

The group of BETULÆ.

Body orange, thorax and apex of abdomen black; wings yellowish-hyaline, with a small fascia in the middle, the stigma testaceous. Antennæ long, 23—28-jointed, 3rd joint a little longer than the two following together; face slightly keeled; scutellum convex in the centre.

5. Pamphilius betulæ, L.

The group of SYLVATICUS.

Head and body violet-black; head and thorax marked with yellow. Antennæ and legs yellow, black at the base; 23—31-jointed, the 3rd joint not much longer than the 4th; face slightly keeled; wings hyaline, stigma black, paler at apex.

A group easily recognised by the violet-black body, yellow scutellum, legs, and antennæ.

6. Pamphilius sylvaticus, Linn.
= *nemorum*, Fab., = *flavipennis*, Curt., = *stigma*, Steph.

The group of INANITUS.

Head black, behind the eyes and below the antennæ, yellow. Thorax black, except the pronotum. Abdomen black, broadly fulvous in the middle. Legs straw-yellow. Sutures on vertex deep, the lateral going down to the antennæ; the ocelli with a furrow before and behind, and from the former another furrow proceeds to the middle of the front. Head between the antennæ slightly carinated. Antennæ 21-jointed, yellow at the base, the rest testaceous, 3rd joint not much longer than the 4th.

The yellow and black stigma, the antennæ yellow at base, and with the 3rd joint not much longer than the 4th, readily separate this group from the next (*depressus*), to which it has a general resemblance in coloration.

7. Pamphilius inanitus, Vill. (pl. vi, f. 6, vol. ii, ♀).

The group of DEPRESSUS.

Head and thorax black, spotted with yellow marks; rarely entirely black; abdomen black at base and generally at apex, fulvous in the centre, rarely fulvous at apex; legs straw-yellow, the tarsi with a reddish tint. Antennæ 19—23 jointed, the 3rd joint as long as, rarely shorter than, two following united; scape black above, yellow beneath; basal half of flagellum reddish, the apical black above; wings hyaline; stigma yellow, or partly fuscous.

The species agree closely in form and coloration; the only differences being that some have fewer or no marks on the head, and in one the abdomen becomes for the greater part fulvous, while the stigma may be yellow, fuscous, or black. Structurally, the antennæ differ in one or two species having the 3rd joint shorter than the following two united, and thus approach the group of *inanitus*; but as these differ from the latter in some respects, and agree with *depressus* in other characters, they are most naturally placed in the present Section. Zaddach forms a separate group for *hortorum*, but I have not done so, as it merely differs from *depressus* in the head having the yellow marks obsolete, or much reduced, and in the stigma being blackish; and *arbustorum*, moreover, forms a connecting link in this respect.

1 (2) Third joint of antennæ not much longer than 4th .... *arbustorum*.
2 (1) Third joint of antennæ double the length of 4th.
3 (6) Stigma fuscous or black, pleura immaculate.
4 (5) A longish curved mark on each side of vertex; abdomen fulvous in middle only, stigma fuscous .... *cingulatus*.
5 (4) A small mark on vertex touching the eyes; abdomen with segments 3—5 entirely fulvous; stigma blackish .... *hortorum*.
6 (3) Stigma yellowish; pleura marked with yellow.
7 (8) Third joint of antennæ not much, if more, than double the length of 4th; flagellum reddish-yellow .... *latifrons*.
8 (7) Third joint of antennæ nearly treble the length of 4th.
9 (10) Front rugosely punctured, no mark over antennæ; abdomen mostly violet-black .... *pallipes*.
10 (9) Front not rugosely punctured, two marks over antennæ; abdomen broadly fulvous .... *depressus*.

8. Pamphilius arbustorum, Fab. (pl. vi, f. 7, vol. ii, ♀).
= *stramineipes*, Htg.

The short 3rd joint of the antennæ easily separates this species from the rest of the group.

9. Pamphilius latifrons, Fall.

= *maculosus*, Zad.

This species is unknown to me as British, and I record it on the authority of Mr. Kirby (List of Hymen., i, 338).

10. Pamphilius depressus, Vill.

A somewhat variable species in the amount of yellow on the head and thorax, and of fulvous on the abdomen; the intensity of the punctuation on the head varies also. The *P. albo-pictus*, Thoms., seems to be a var. of *depressus*, chiefly differing from it in the greater amount of white on the pleura, and in the lateral lobes of the mesonotum being marked with white. I have a specimen of *albo-victus* from Kingussie.

11. Pamphilius pallipes, Fall.

= *variegata*, Zad.

The strongly punctured, opaque, rugose front easily distinguishes this species. In addition to the fact of there being no white or yellow marks over the antennæ, the abdomen being only obscure fulvous in the middle serves also to distinguish it.

12. Pamphilius cingulatus, Latr.

= *suffusus*, Htg., *balteatus*, Zad.

This is, perhaps, only a var. of *hortorum*; the vertex, however, is less strongly punctured; there are two conspicuous white marks on the vertex, the stigma is lighter in tint, especially in the middle, and only the centre of the abdomen is fulvous, not the two middle segments, as in *hortorum*. The ♂ differs from *hortorum* ♂ in having the scutellum black.

13. Pamphilius hortorum, *Klug*.

= *balteata*, Fall., *sec.* Thoms.

XYELINA (vol. i, p. 65).

Of this sub-family we have only one species, *Xyela Julii*, Bréb. (*pusilla*, Dal.), pl. vi, fig. 11, vol. ii.

Sale, Cheshire:
October, 1885.

ERRATUM.

Page 119—Instead of as printed, read as follows:—

Cephalotes, Fab., = *Panzeri*, Leach.

Plagiocephalus, Fab. (pl. vi, f. 10, vol. ii).—As with the other species the colour varies, &c.

NOTES ON THE *LEPIDOPTERA* OF BELFAST.

BY CHAS. G. BARRETT, F.E.S.

Business requiring that I should spend a few weeks of the latter part of this summer at Belfast, I went over full of the hope that in a part of Ireland which has been but little worked since the time of Haliday, something of special interest and rarity would surely turn up. This hope was not realized. With the exception of single specimens of *Larentia cæsiata* on Divas Hill, *Coriscium sulphurellum* in Colin Glen, *Larentia salicata* and *Stilbia anomala* near the Cave Hill, and *Plodia interpunctella* at the Custom House, hardly a single species was taken which would not be found commonly in ordinary English localities, and the only relief to the monotony of familiar species was when, occasionally, they exhibited some interesting tendency to "sports" and variations in colour from the normal types.

Perhaps one of the most interesting in this respect was the abundant *Pieris napi*, which, already known to produce dusky forms in the west, here shewed a special development of colouring, the males as creamy-white as elsewhere in their ground-colour, having the apical blotches black instead of grey, and the round spot below well developed, while in the females the veins of the upper side were also strongly tinged and suffused with black, while the spots in some cases almost coalesced into a band. In some also the under-side was extremely bright in colour and marking.

Abraxas grossulariata was common, of course, and provokingly monotonous in ordinary colouring, but the strange tendency to variation inherent in the species showed itself, in one specimen, in an unusual direction, a large portion of the fore-wings being suffused with *pale yellow*, while a narrow band of the same ornamented the hind-wings.

Melanthia rubiginata was very common among alder, but only of the typical colouring, while *Cidaria immanata*, which abounded along with it, was in great beauty, varying from white to blackish in the central band. *Eubolia mensuraria*, which swarmed, was also variable, and sometimes very richly banded, while *Melanippe fluctuata*, among its darker variations, produced one in which the pale portions of the fore-wings were beautifully covered with delicate rippled or crescented lines.

The gas lamps attracted plenty of *Luperina testacea*, several of which were nearly black, *Hydrœcia micacea* varying to a deep brown, and *Noctua augur* smaller than usual and with narrower fore-wings.

On the other hand, all the *Xylophasia polyodon* seen were of the most ordinary brown form, no approach to the northern and western *black* variety being observed. This is the more remarkable, as the black form occurs near Dublin. *Scopula lutealis* was extremely abundant and well marked, and *Eudorea angustea* pretty common; from its time of appearance I judge that it is here *single* brooded. Two *E. murana* occurred on a wall *in a sheltered valley under trees*; I looked for it in vain on the stone walls on the hills. *Crambus tristellus* varied extremely, the ochreous form being rather common, and occasionally having very little indication of the longitudinal streak, but showing a faint tendency to *transverse* markings.

Tortrix unifasciana and *rosana* were rather more richly coloured than usual, and also *T. viburnana*, which occurred on the high hills. Here also *Eupithecia nanata* was common, and showed a slight tendency towards the markings of the variety from the west of Scotland which has lately excited so much interest.

Of *Sericoris lacunana* only the small Moorland form occurred, and *Halonota trigeminana* (which was scarce) was also small and dark, whilst some of the specimens of *Orthotænia antiquana* were among the most strongly marked that have come under my observation. *Grapholitha Penkleriana* (which was abundant) presented occasionally the rich variation of colouring which it shows in the Highlands of Scotland, *Sciaphila virgaureana* was very large and dark, and *Steganoptycha nævana* wonderfully plentiful, but of ordinary colouring. A few *Pædisca occultana* and one *Coccyx nanana* occurred amongst firs, and two or three *Dichrorampha tanaceti* (*herbosana*) on the lower slope of the Cave Hill. This species must be exempted from the slight thrown on the rest, it certainly is *not* a common English species, unless in the north, and being new to me in the living state was naturally very interesting.

Tinea pallescentella flew round the lights indoors, having doubtless been at work upon the carpets, *Cerostoma nemorella* occurred singly in Colin Glen, and *Orthotælia sparganella* by the side of the Lagan, where, moreover, wasps' nests were so plentiful, that it was difficult to avoid stepping into them. Along the hawthorn hedges *Swammerdamia oxyacanthella* was very abundant, along with *Coleophora nigricella* and *Argyresthia nitidella*; *A. semitestaceella* was common among beeches, and *A. Gœdartella* in thousands among the alders, sometimes presenting most lovely variations, while, strange to say, *A. Brockeella* appeared to be totally absent.

A small moth buzzing over the ground in a street in the middle of Belfast, one hot day at the end of July, proved to be *Ochsenheimeria Birdella*; it condescended to settle for an instant on a stone, so as to prove its identity by exhibiting its extremely hairy head, and then buzzed away, for I had no means at hand of securing it. It must have been brought in from the country among green fodder, but I saw no other specimen.

I seized upon the opportunity of Bank Holiday to run over to the Giant's Causeway—upon which I will not expatiate, nor upon the steam and electric trams and their inability to cope with the rush of holiday visitors, nor upon the furious torrents of rain from the north-west which attacked the said visitors and drove them away—but when the wonders of the place had been duly admired, the angles on the columns (from three to nine) duly counted, the customary fees exacted, and "specimens" purchased, I had, in spite of the rough wind, a short hunt after insects. The thrift (*Armeria vulgaris*) produced a few larvæ and pupæ of *Sericoris littorana*, and the rushes *a single sleeping specimen of Lycæna Alexis* (*Icarus*). What a result! but when this single "common blue" came to be examined, it proved to be a female, having, along with dark clouding, some *white* blotches on the upper-side, and thus was a very satisfactory variety.

A run round Island Magee on Saturday afternoon disclosed a grand coast of bold cliffs, with indications of the nesting of herring- and black-back gulls earlier in the season (indeed, one young one of the former species was still in the nest), and showed cliffs and banks everywhere beautifully ornamented with the largest harebells I ever saw, but of insects (save *P. napi*, *E. mensuraria*, and *S. lutealis*) none, and a careful search of the low coast at the other side of the entrance to Belfast Lough furnished no better result.

68, Camberwell Grove, S.E.:
September 27th, 1885.

NOTE ON THE CIRCULATION IN EMBRYONIC LARVÆ OF *BOTYS HYALINALIS*.

BY WILLIAM R. JEFFREY.

The subject of the "pulsating dorsal vessel," or heart of insects, which is readily seen in most Lepidopterous larvæ, having been alluded to in the pages of this month's magazine, is an inducement to put on record the *earliest* stage in the life of a larva at which I have been able to witness it. From the 5th to the 17th of last August I was engaged at times in watching the development of the embryo in some eggs of *Botys hyalinalis*, which I had been so fortunate as to secure, laid upon slips of glass, thus affording a good opportunity for observing them under the microscope.

The early stages, interesting as they were, may be passed over here, but by the 15th, being the tenth day of incubation, the young larva was well formed, and most of the organs could be made out. That morning the dorsal vessel became visible, and at 8 a.m. I noticed the first traces of circulation in it. The pulsations at first were very faint and feeble, taking place somewhat irregularly at long intervals of 20 and even 30 seconds; at 2 p.m., they had become more distinct, with shorter intervals between each beat, and became still more accelerated by the evening. At this time the beautiful ramifications of the tracheæ came rather suddenly into view. The oral organs were well-developed, and conspicuous from their brown colour. The œsophagus also could be distinctly traced, especially when, by a sucking action, a bolus of yolk-granules was drawn down, and seen to pass into the alimentary canal, which effort was continued at intervals on the 16th, till all the remaining yolk-granules had been ingested.

Then a period of rest took place during part of the 17th, when a beautifully clear view of the heart and its action was obtained, the pulsations being timed at 40 per minute, increasing to 60 at 8 p.m., when great exertion was manifested on the part of the larva just before escaping from the egg at 8.10. Thus, it will be seen, some sixty hours had elapsed from the time I was first able to detect a circulatory movement in the dorsal vessel.

Ashford: *October 1st*, 1885.

THE QUESTION RESPECTING THE GENUS *AULOCERA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

A few days since I received a letter from Major Yerbury, now stationed at Campbellpur, but then on a trip to the Murri Hills, in which he says:—"Among the butterflies are two *Aulocera*, which I cannot think are identical, though I now and again take a specimen that appears to link them, they frequent quite different ground; No. 50 (your *A. Scylla*?) being found on the top of the hill 7000 ft. above sea level; No. 42 on the side of the hill, upwards of 1000 ft. lower down. I have not, so far, taken the two together."

Now, when I saw M. de Nicéville's somewhat excited reply to a paper which I wrote solely in the interests of truth, I first thought of the motto on the cover of this magazine, and afterwards of the paragraph above quoted, and which bears somewhat weightily in my favour.

I will not attempt to inform M. de Nicéville respecting the fauna of the Murree (or Murri) hills; he is resident in India, has the fauna, the altitudes, the climate of every place at his fingers' ends, and can, therefore, afford to look down with profound pity upon those who do not possess his advantages; but I will tell the readers of this magazine that there must be a considerable difference of temperature between 6000 and 7000 feet altitude above the sea, and much more between 7000 and 12,000; that, moreover, there are not a few genera occurring on the Murri hills which are found equally on the plains, such as, *Lethe*, *Pyrameis*, *Atella*, *Libythea*, *Lycæna*, *Teracolus*, *Colias*, &c., that as *Aulocera* is not (as M. de Nicéville asserts) a Palæarctic genus, but only allied to one, with about as much right to be called Palæarctic as *Lethe*: as the latter also is found from the N.W. Himalayas to the Philippine Islands, there is nothing very extraordinary in my "ignorant" suggestion, nor is it unprecedented to find the same species on both mountain and plain; on the contrary, several naturalists are now trying to explain the existence of slight local differences in the same species by the influence exerted over it by greater or less cold, and one constantly hears it said:—"this large form, or this modification, is the mountain type of so-and-so."

British Museum: *October*, 1885.

[We had intended to close this controversy with this paper, but fresh matter, apparently of considerable value, comes to hand. Unfortunately, we have been obliged to take liberties with nearly all the communications (Mr. Butler's included) so far as concerns the infringement of the terms of the motto on our cover (and on the title-page of vol. i, 1864—5). And all future communications will be treated in the same manner, if necessary.—EDITORS.]

REMARKS UPON CERTAIN HIMALAYAN SPECIES OF SATYRID *RHOPALOCERA*.

BY A. GRAHAM-YOUNG.

Having seen a paper by Mr. A. G. Butler (in the Ent. Mo. Mag. for this year, p. 245) upon the distinctness of his so-called species, *Aulocera Scylla*, it has struck me that a few remarks upon the genus *Aulocera*, based upon my personal acquaintance with it of over 20 years, might possibly be of use. I may add that I have for the past 17 years resided all the year round in the Himalayas, and have collected in Kashmir, Chumba, Kulu and Lahoul, at all heights up to nearly 16,000 feet.

Aulocera Padma, ♂, I first took near Rajaori in the Kashmir territory in July, 1864, at but little over 3000 feet, and have in June, 1883, taken the same sex at Barkli in the Mundi State in a deodar forest on the banks of the Beas, at barely 3000 feet. For some reason that I cannot explain, the females never appear to descend as low as the males do, and it is a very curious circumstance, that as far as my experience goes, the June and July broods seem to consist almost entirely of males; it was not until 1880 that I succeeded in obtaining a female in June, whereas, in October, the females are in a great majority, some faded, as though they had come out at the higher levels in the summer, and been driven down by the cold, whilst the greater number, to judge from their fresh condition, had but just emerged from the pupa. I never took but one worn and battered male along with this autumnal brood, which seems a true Amazonian one, all females, and appears in October between 3500 and 4500 feet.

The two low-level species of *Aulocera*, *Padma* and *Saraswati*, which latter I have taken (August 21st, 1885) at 3600 feet, seem wonderfully constant to the types; whilst, on the contrary, *A. Swaha*, which comes next in the order of ascension (7000—9000 feet) varies greatly in the colouring of its bands: before I knew much about this species, I made at least three beautiful brand-new species, but an increased knowledge of the genus obliged me to suppress their names.

The last remaining species, *A. brahminus*, which I have found between 8000 and 13,000 feet, is the most variable of all. Those examples which occur on the outer ranges at 8000 feet or so, are constant enough to the type; but as we go north, and ascend higher, it begins to vary, and once fairly across the great snowy range and in the true Palæarctic zone, it is simply Satyrid variation run "mad," all sorts and conditions of *brahminus* varying in every possible direction, some towards *Scylla*, others towards *weranga*, with a dozen intermediate forms, which, luckily for us poor perplexed field entomologists, have never yet fallen into the clutches of the species-mongers, who would incontinently have enriched our nomenclature with many new synonyms.

In the upper Chandra Valley, all these varieties go flying about, cheek by jowl, in the most amicable way, and worse still, intermarrying in the most unconcerned manner, as if there were no such beings as species-mongers in existence! No one who has, as I have, observed SOME THOUSANDS of *brahminus* in their native wilds, can possibly admit the so-called *A. Scylla* to be anything more than one of the many varieties of *A. brahminus*.

One word as to what are called "types." It appears to me the word is used in a misleading sense. A certain school of entomologists seem to consider that the first insect described of any species must of necessity be the type, and look upon it as something sacred, not to be touched or questioned, a golden image in the plain of Dura in fact, for us all to bow down to!

It is only after the careful examination of a long series of any given insect, that the dominant form can be ascertained; this once done, the true type becomes finally settled. No doubt many of the existing so-called types of species at present slenderly represented in our collections will, in the fulness of time, prove true types, and many others, *A. Scylla* included, will be relegated to the limbo of pseudotypes.

Nothing can be more certain than, that when the life-histories of the Himalayan butterflies come to be known, dire will be the havoc amongst the newly-manufactured species.

Callerebia hybrida is another *very* bad species, and I was somewhat surprised that Messrs. Marshall and de Nicéville should have admitted its specific rank. It simply swarms here, and I have this season made a careful examination of several hundred specimens to settle the point of its distinctness. I found every possible gradation, both in the shape of the wings (which is, I believe, the ground of separation), the markings of the under-side, and the blindness or pupillation of the ocelli beneath, between it and *C. Annada*, and find it simply impossible to draw the line anywhere, unless one is prepared to admit about *fifty* distinct species! *C. hybrida* must, I fear, cease, and stand under *C. Annada*, to which it really belongs.

Hipparchia diffusa was, when I first took it in the Ravi basin (I found it not uncommon in 1866 and 1867) at once recognised by me as merely a variety of *H. Semele*, and I had the less difficulty in coming to this conclusion, for whereas the specimens of *H. Semele* (which is very common in Persia) I took near Tabriz and other parts of Azerbijan agreed exactly with English specimens, those taken in the Shemron, due north of Tehran, had a slight tendency to vary, and specimens from Shahrood-i-Bostan and the mountains near Meshed showed a further, but still very slight, variation. I have no doubt the "missing links" will turn up in Affghanistan (whenever it becomes safe to collect there), and that this form from the Ravi basin, as far as we know, the eastern limit of *H. Semele*, will prove inseparable from the European type.

Kulu, Kangra, Punjab:
August 22*nd*, 1885.

SEASONAL VARIATION IN *RHOPALOCERA.*

BY GEORG SEMPER, F.E.S.

At the meeting of the Entomological Society of February 4th, whereof the report has recently been issued with part ii of the Transactions for this year, Mr. W. L. Distant exhibited a series of wings of butterflies to illustrate seasonal variation of Indian *Rhopalocera.*

At the 5th "deutscher Geographentag," held at Hamburg, 9—11th April, 1885, the Committee had arranged an exhibition of objects having in any way relations to geographical studies. In this exhibition I exhibited, among other *Lepidoptera*, a series of Manila *Pieridæ*, showing seasonal dimorphism (see "Führer durch die geographische Ausstellung, Hamburg, 1885," pp. 60, 61). The species exhibited were, *Tachyris Nerissa*, Godart; *Pieris Aspasia*, Stoll.; *Eronia Bœbera*, Eschscholtz.

Specimens flying during December to March, are nearly all lighter-coloured than those flying from June to September, which are the darkest; and those from the intermediate months are generally of an intermediate tint. Owing to the tropical climate of Manila, the various broods are not so distinctly separated as in Europe, and, therefore, it happens that light-coloured specimens may be found during June to September, or dark-coloured from December to March. But, after a careful examination of several hundred specimens, captured in the neighbourhood of Manila, the prevailing colour is as stated above.

For example, I may quote the figures in Cramer, Pap. Exot., t. 320, C D E F, *Papilio Zelmira.* The figures E F represent the light, and C D the dark form of the female of *Tachyris Nerissa*, Godart.

Altona: *September*, 1885.

THE *NEPTICULÆ* OF THE MOUNTAIN-ASH.

BY WILLIAM WARREN.

The 11th vol. of the "Linnæa Entomologica" contains a treatise by Prof. Frey on the *Nepticulæ*, in the course of which he describes as a new species *Nep. aucupariæ*; and, subsequently, he quotes Tengström's description of *Nep. Nylandriella*, the food of which was not then known. On p. 376, we read:—

"N. AUCUPARIÆ, *n. sp.*

Capillis ochreis, antennarum conchula dilute flavida; alis anter. fusco-æneis, subnitidis, apicem versus saturate violaceis, *ciliis griseis.* 2⅓'''. 1 ♀."

Then follows a more detailed description in German, the principal points of which are:—

Head and face paler than in *N. viscerella*, light ochreous-yellow: the rather conspicuous eye-caps also appear lighter yellow, approaching rather to whitish: base of antennæ blackish: palpi whitish. Thorax deep olive-brown, with metallic lustre. Abdomen blackish: legs grey-brown; hinder tarsi slightly lighter. The fore-wings, which are rather broad, have the same ground-colour as the thorax, and may easily be distinguished from *viscerella* by their lustre, possessing as they do a much finer scaling.

Towards the apex they shine with a very bright purple gloss. * * *

Larva green, reminding one of that of *viscerella*; as also does the mine, which is often very serpentine. The cocoon, on the contrary, is nearly round, flattened and smooth, in colour deep reddish-brown.

On page 445, there are recorded, under the head of "Addenda," "two insufficiently described and ill-known species," viz., *Nylandriella*, Tgstr., and *subnitidella*, Z.: that is, species with which Professor Frey was personally unacquainted.

Of *Nylandriella*, the description *by Tengström himself* runs as follows:—

"*Nylandriella*, Zett. (*in litt.*).—*Minima* tota æneo-cinerea *nitida, capillis lutescentibus. Long. al. ant.* vix 1¾ millim. *Simillima præcedenti, at duplo minor.*" Frey adds: "Near Helsingfors, in June;" and says, "The figure in H.-S. represents an insect entirely leaden-coloured with ochreous-yellow head. May it not be a much-wasted specimen?"

The preceding species in Tengström is recorded in a note as *concolorella*, Nyl., which is given in Staudinger and Wocke's Catalogue as a distinct species (2956), *Bucc. concolorella*, Tgstr., but which there can be little doubt from the description as given by Frey from Tengström, is identical with the well-known *Bucc. cristatella* (2957).

Now, the first thing that struck me when I saw Mr. Griffith's *Nepticulæ* from Sutherlandshire was their great resemblance to small *cristatella*; and the figure of *Nylandriella* in H.-S. represents them admirably. There is not a trace of purple towards the apex, and the insects are certainly not wasted. The only *aucupariæ* I have seen were six specimens which were sent me by Mr. Threlfall, of Preston: of these five correspond well with Frey's description of *aucupariæ*, and the sixth is manifestly identical with Mr. Griffith's insects. Mr. Threlfall tells me that he breeds two forms of the insect, which different forms he has hitherto attributed to difference in sex. I cannot but think that there are two species confounded. It must be remembered that Frey's description was made from a *single* bred ♀.

Since writing the above, I have had an opportunity of looking over Mr. Stainton's *aucupariæ* and *Nylandriella*, and I am glad to say that he considers that there are two species mixed up in his series of the former: the smaller and unicolorous ones coinciding with those sent him as *Nylandriella*, while the larger specimens with purplish apex should be the real *aucupariæ*, Frey. The discovery of the larva would settle the question more satisfactorily.

Amongst a number of Mr. Griffith's captures, which Mr. Stainton received from him alive, were specimens both of *aucupariæ* and *Nylandriella*; the latter being, however, the more plentiful of the two.

Merton Cottage, Cambridge:
September 21st, 1885.

LIBURNIA GUTTULA, GERM., AND *L. GUTTULIFERA*, KBM.: A DIFFERENTIAL ESSAY.

BY JAMES EDWARDS.

Amongst the series of insects intended to represent *Lib. guttula* in my collection, I have long had a ♂ which I regarded as an abnormally small exponent of that species, but having recently taken a series of both sexes of a species evidently identical with my small ♂, I have been lead to investigate the matter, and upon attentive perusal of so much of the literature of the subject as is at my command, I find that my small species is the true *guttula*, as understood by Kirschbaum, J. Sahlberg, and Fieber, while the larger species is the *Delphax guttuliferus* of the author first named.

The principal distinctive characters of the two species may be stated as follows:—

GUTTULA, Germ.	GUTTULIFERA, Kbm.
Length, 2⅓—2⅔ mm.	Length, 3½—4 mm.
Insect very rarely macropterous.	Insect generally macropterous.
Elytra not widened towards the apex, which is sub-lanceolate. Dark marking at the apex of elytra very rarely more than a small sub-triangular black spot; the brown stripe on the corium entirely wanting.	Elytra slightly widened towards the rounded apex. A black or dark brown streak on the membrane, continued to the base of the elytra as a wide ill-defined brown stripe, which is sometimes very faint, but always discernible on holding the elytron up to the light. (In the brachypterous form the elytra are sub-lanceolate, but specimens in this state are easily distinguished from *guttula* by their superior size).
Styles (viewed *in situ*) curved, sub-parallel, scarcely perceptibly flattened, vertically gradually acuminate from the base.	Styles (viewed *in situ*) oblong parallel, very distinctly flattened, vertically and suddenly acuminate at about the apical third.

It is possible that Marshall, writing of *guttula* (Ent. Mo. Mag., i, 200, 2), had both species before him, for in his description he gives the correct length for true *guttula*, but he proceeds to remark that the dark stripe on the elytra is sometimes visible to the base, a circumstance proper to *guttulifera*, though it never occurs in *guttula*. The characters assigned by Scott to *guttula* (Rev. Brit. Delphacidæ, Ent. Mo. Mag., vii, 25, 5) apply equally well to either. In Puton's Catalogue, ed. 2, *L. guttulifera*, Kbm., appears as a synonym of *vittipennis*, Sahl., but it seems better to follow the latter author in using the name *guttulifera* for this species, as it is to be assumed that he had very good reason for adopting Kirschbaum's name in preference to that given by himself.

131, Rupert Street, Norwich :
Oct. 15*th*, 1885.

Danais Archippus (*Anosia Plexippus*) *in Dorsetshire.*—I caught, on the 26th September, in a field near my house, a few feet from the sea, a perfect *Anosia Plexippus*, Lin. She was strong on the wing. Mr. Butler says its capture is worthy of record as an additional item in the history of its migration.—T. Geo. Cuthell, Chaddesley Glen, Parkstone-on-Sea : *October* 5*th*, 1885.

Sphinx convolvuli in Co. Cork.—I found, on the 22nd of September last, a specimen of this fine moth floating in the sea in Glandore Harbour. The insect was quite alive, but was considerably rubbed. This is the first occurrence, to my knowledge, of this moth in County Cork. Another specimen, also floating in the sea in this harbour, was seen by a friend about a week after the above-mentioned date. I had shown the *Sphinx* I captured to the friend in question, so I am sure she could not have been mistaken. There must lately have been an unusually large influx of these Sphinges to these Islands.—C. Donovan, Jun., Westview, Glandore, Leap, Co. Cork : *October* 9*th*, 1885.

Sphinx convolvuli at Bromley, Kent.—A fine specimen of this species was captured here last month, and is now in the collection of Messrs. J. & C. Nussey.—E. Saunders, St. Ann's, Bromley : *October* 10*th*, 1885.

Sphinx convolvuli at Woking.—A rather worn specimen of *S. convolvuli* has been sent me from Woking, near which it was taken.—Id.

Sphinx convolvuli and Acherontia Atropos at Kingston-on-Thames.—During last month *Sphinx convolvuli* has been very common here and about Kingston. In my nine years' experience of this neighbourhood this is the first season in which *convolvuli* has been found in it. *Acherontia Atropos* has also been common here this season in the larval state.—H. Goss, Berrylands, Surbiton Hill : *Oct.* 17*th*, 1885.

Chœrocampa celerio at Walton-on-the-Naze.—I am glad to be able to add another to the long list of captures of *C. celerio*, Mr. E. Bidwell having kindly given me a specimen which had been caught by his nephew, Master H. H. Cotman, at 2, East Terrace, Walton-on-the-Naze, Essex, on September 15th. The insect when found was resting on the staircase, and was then quite perfect, but having been kept in a box alive for four days was somewhat injured.—J. R. Wellman, 8 (late 219), Medora Road, Elm Park, Brixton Rise, S.W.: *October*, 1885.

Which is the true Coleophora flavaginella?—Of this insect, so named by Madam Lienig, Zeller writes as follows in the "Isis" of 1846, p. 295:—"Madam Lienig has sent me several Livonian species of the more obscure forms of *Coleophora*, but either in solitary specimens, or in specimens in such poor condition (they have perhaps suffered from their journey to Glogau), that to name or describe them seems scarcely advisable. I therefore only remark that *Col. flavaginella*, Lienig, is identical with Fischer von Röslerstamm's *C. flavagipennella* (the former of these names seem preferable from its greater brevity), and is a species of the size of *C. lusciniæpennella*,* with the anterior wings of the same colour, on which the brownish-yellow veins are so broad, that the dirty yellowish ground colour is only perceptible here and there; towards the apex of the wing are some brown scales; the antennæ are annulated black and white. Madam Lienig found the larva at the Pastorate from March to the end of June on walls, fences, and birch-trunks. The case is small, grey, like a grain of rye."

I fear at the present day none of us can decipher the above description so as to apply it to any species. There is no indication of a food plant, the birch trunks may have only been sought as a convenient foothold by some hibernating larva, which had fed up on some low plants, and it might be quite possible that the cases collected from "walls, fences and birch trunks" did not all belong to the same species.

Perhaps before seeking information from later writers, it may be as well to say something of Madam Lienig's locality. Few of us have been to Livonia, still fewer to Kokenhusen.

"The Pastorate of Kokenhusen," writes Zeller, "is two versts from Kokenhusen itself, and, like that place, is situated on the right bank of the Düna, 14 miles† above Riga. A stream, the Pehrse or Perse, flows near the Pastorate, and falls into the Düna below Kokenhusen. . . . . A notice of the geological, botanical and climatic conditions of the locality must be deferred to a future occasion."‡

Tengström, in his "Bidrag till Finlands Fjäril-Fauna" in 1847, introduces *C. flavaginella*, Lienig, Zell., with a ?, but only says of it "In the middle of July, once near Helsingfors in a hilly meadow."

Zeller, in the 4th volume of the "Linnæa Entomologica," p. 353, gives a more detailed description of the imago, to which I refer my readers. He remarks, "I received from Madam Lienig a specimen of the species, with a case on the pin, which was no doubt that from which the insect had emerged. This case resembles those which, at the end of September, 1848, I found in great numbers on *Chenopodium album*, in places where the plant was well protected from the wind, but not too much shaded. They fed only on the seeds. The case of the young larva is cylindrical, slightly tapered posteriorly, rather short, pale grey, plastered with little bits of grey and brownish dirt, especially towards the mouth end. The case of the full-fed larvæ is 3 lines long, cylindrical, slightly tapered at both ends, beneath with a very faint longitudinal keel. . . . . The wide mouth is almost circular, and placed very obliquely. The ground-colour is pale grey, darker or paler, rarely quite whitish, and in many specimens we see bare streaks and longitudinal lines most frequently on the under-side, the length, breadth and number of these lines vary much. . . . The larva remains unchanged during the winter, and crawls about actively the following spring; I have often found it on fences in the grass, without having been able to breed the imago."

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* Our rose-feeding *gryphipennella* was then known as *lusciniæpennella*.

† A German mile is about five English miles.

‡ This future occasion probably never occurred, and the flora amongst which Madam Lienig worked is still unknown to us.

He never mentions, either then or afterwards, what moths were produced from these larvæ he had collected, so that we do not know whether they were *flavaginella* or not.

Tengström, in 1859, introduces in his "Anmärkningar och Tillägg till Finlands Småfjäril-Fauna," p. 157, *C. flavaginella* without any query, and says, "A female from the neighbourhood of Helsingfors I cannot separate from *flavaginella*, of which I have eight tolerably well preserved specimens from Madam Lienig's collection.* They somewhat resemble Nylander's *punctipennella*, especially wasted specimens, and agree also in size; but fine and uninjured specimens have no spots, but only darker shady streaks between the more shining wing-nervures. Scattered spots occur only in three somewhat wasted and injured specimens. The ground-colour is pale dirty yellow, with faint ochreous-yellow streaks. . . . ."

In the "Stettin. ent. Zeit.," 1864, p. 165, Herr G. G. Mühlig, for the first time, endeavoured to differentiate *flavaginella* from *annulatella*; the larvæ of both species feeding on the same plants at the same time. He says, "One used to collect from *Chenopodium* and *Atriplex* the free-sitting, grey and black granulated cases, striped with light grey, and gave them some branches of the plants for their food, and eventually there appeared both *annulatella* and *flavaginella*; but, then, one had overlooked that along with the above-mentioned cases, one had probably left on the food-plant larvæ with cases composed of green pieces of the seed covers, and which were less easily perceptible.

"After repeated attempts to breed the larvæ, we have now succeeded in distinguishing the two species.

"The free-sitting, *firm* case belongs to *flavaginella*, whilst that made with the seed-coverings belongs to *annulatella*. The larva of this last-named species constructs from fragments of the seeds a case in which it can move about on the plant; when the case is several days old the bits of seed become yellowish and might betray the concealment of the larva, which then quits this case to construct a new one. When full fed it descends to the earth, and buries itself in the soil, and then spins a case formed of grains of sand, which at a fast glance much resembles the case of *flavaginella* but it is quite tender and soft to the touch, whilst the case of *flavaginella* is firm and hard."

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* Two of these specimens were handed to me by Dr. Nylander when I was in Paris in 1859, as a present from his friend Dr. af Tengström.

Wocke, in his continuation of Heinemann's "Schmetterlinge Deutschlands und der Schweiz," II, 2, ii, 611, adopts the above differentiation of the two larvæ given by Herr G. G. Mühlig.

I should here remark that I have received specimens as *flavaginella* from Mühlig and Hartmann; these are a narrow-winged, dark brown species *with no pale costa*, only with a few obscure darker streaks on the anterior wings; large specimens resemble *annulatella* in size, but ordinarily the insect is smaller. These specimens, received as *flavaginella*, do *not* resemble the two Lienigian types received through the kindness of Dr. af Tengström. Madam Lienig's specimens are ochreous (not dark brown), and show hardly any symptoms of darker streaks; in fact, they closely resemble specimens bred by Mr. W. H. B. Fletcher (which I have now before me) from *Suæda fruticosa*. This, however, is a plant scarcely likely, from all I can make out, to have occurred in Madam Lienig's locality.

How many species of this group of the genus occur on the plants of the Order *Chenopodiaceæ* is a puzzling question; but I think the proper way will be, first to learn to differentiate all the species, and then we shall be better able to answer the question, "Which is the true *C. flavaginella*?"—H. T. Stainton, Mountsfield, Lewisham, S.E.: *September 16th*, 1885.

Local Lepidoptera in Camberwell.—In spite of the rapid growth of the metropolis, and the consequent tendency to the destruction of localities for insects, the general cultivation and preservation of trees and shrubs in the roads, gardens and shrubberies, to some extent counteracts this tendency, and many moths, of species not usually considered abundant, seem to hold their own in this neighbourhood. *Smerinthus tiliæ* has twice this summer been found here in public thoroughfares, and *Cerura vinula* once, and one night I was much astonished at catching a male *Phorodesma bajularia* flying about a lamp *in the street*; I suppose it must have come over the hill from Dulwich Wood. *Cidaria dotata* and *Eupithecia fraxinata* have several times been met with close by, and twice *Sericoris bifasciana*. I confess that I cannot understand the occurrence of this last species, there being apparently no fir trees at hand. An old favourite with which I am much pleased to renew my acquaintance is that lovely creature, *Pyralis costalis*, another is *Chrysoclista linneella*, which has become astonishingy plentiful. It was very curious to see them at 9 o'clock on a sunny morning dancing round the trunks of the limes like swarms of black flies. Within the last few days *Ennomos angularia* and the larvæ of *Acronycta aceris* have been found upon the same trees.—Chas. G. Barrett, 68, Camberwell Grove, S.E.: *September 17th*, 1885.

Melanism in metropolitan Lepidoptera.—I have been a good deal interested this season in the apparently great proportionate increase in numbers of the black forms of *Eupithecia rectangulata* and *Tortrix Podana* here in Camberwell. I collected a good deal here twenty-five years ago, and remember that among the ordinary green specimens of *E. rectangulata* a black specimen would not unfrequently occur; but this summer nearly every specimen found in the neighbourhood has been more or less black—certainly the green form has been comparatively rare. Unfortunately the black specimens become worn almost immediately, so that very few are worth keeping.

In *Tortrix Podana* the melanism seems to be limited to the males, some specimens being very black, though the majority are still of the usual beautiful chestnut colour; but the proportion is very different to what it formerly was.

The cause of this change is very obscure. Other usually variable species show no such tendency here. *Abraxas grossulariata* is most provokingly constant in colour, and black *Amphydasis betularia* are here unknown.—ID.

A new (?) *Nepticula larva.*—When in the neighbourhood of Newcastle-on-Tyne a short time ago, I was seeking for anything that might turn up. After a while, happening to be looking on the grass, I noticed the mine of a *Nepticula* which seemed new to me, on a low plant. The plant was *Potentilla tormentilla*, and, as I knew we had no species feeding in it, I prostrated myself at the shrine of the goddess at once, and devoted the rest of my limited time to her service. With very close, hard searching, I found a few larvæ, and now have a few in cocoon. The mine is very neat and clean looking, the larva a very deep clear yellow (much like that of *N. poterii*), and the cocoon small, very pale drab. Mr. Warren tells me that he bred *N. æneofasciata* last year from a mine on the same plant; but this certainly is not that species. Mr. Stainton also found a mined leaf in Scotland some years ago, from which he bred an imago, which he cannot refer to any species with which he is acquainted. Should this not be *N. tormentillæ*, a continental species, it will most likely prove to be new to science.—J. SANG, Darlington: *October*, 1885.

Luciola italica at Darlington.—One evening last June, in one of our streets, several persons noticed two lights waving about in the air, which some fancied were lighted fusees being waved by some one. One of those who saw them, however, fancied they were not anything of the kind, and caught one of them in his hand; the other escaped. It proved to be a beetle, and was brought to me to name. Knowing that it was not either of our two luminous species, I sent it up to Mr. C. O. Waterhouse at the British Museum, who kindly determined it for me as above. The occurrence of this South European species here is rather remarkable. The light was brilliant, similar in colour to that of the glow-worm (*Lampyris noctiluca*), but increased and diminished with equal pulsations about every second.—ID.

Note on Actidium coarctatum, Hal., and Actinopteryx fucicola, Allib.—I have recently taken these two rare species in great abundance from a heap of decaying seaweed, &c., upon the cliffs; it would be difficult to say which was the more plentiful. From a single handful of shakings I got seventeen specimens of the former species, and forty-three of the latter. As a rule, however, the numbers were much more equal.—THEODORE WOOD, Freeman Lodge, St. Peter's, Kent: *October 6th*, 1885.

Pelophila borealis, Payk.: peculiarity of tarsi.—In a series of about five and twenty of this beetle sent to me from Lowry's Lough, Ireland, by the Rev. W. F. Johnson, I found two specimens, both males, which appeared to have lost a great portion of the left hind-tarsus, as it seemed so much shorter than the right hand one; on examination, however, I found that both tarsi were quite perfect, but that the joints were much contracted, and instead of being very elongate, some of them were almost transverse: the claws were perfect and I could find no other peculiarity.

I have never noticed this in any beetle before, and it is strange that there should have been two instances in so small a series. They appear to be very ferocious beetles; many of them reached me alive, and, while I was looking at them, one rushed upon a companion and seized it by the leg like a bull dog, refusing to let go in spite of all I could do to force it to do so.—W. W. Fowler, Lincoln: *Oct. 14th*, 1885.

Coleoptera at Tenby.—During a visit to Tenby in August, I took a few *Coleoptera* worth recording, among them the following:—

Nebria complanata, one specimen, under a piece of old hamper on the beach; this species appears to be exceedingly rare at Tenby. Mr. Jeffreys, naturalist, of Tenby, informed me that he had taken two specimens at Pendine, about ten miles off, but that he had never known it to occur at Tenby before; this seems rather strange, as it is fairly abundant at Swansea, a little way up the coast: in the same way, however, the land-shell, *Helix pisana*, which literally swarms at Tenby will not flourish at Swansea, although experiments have been made with a view to naturalizing it there. On the shore close to the town, I found about fifty *Diglossa* below high water mark: they were chiefly running in the hot sun. I also obtained *Cassida hemisphærica* (one specimen: the only other I ever met with was at Filey, Yorkshire), *Anisotoma dubia*, *Œdemera cærulea* (a reddish variety), *Cteniopus sulphureus*, *Thyamis marcida*, *Meligethes umbrosus* (one or two specimens), and last, but not least, *Meligethes exilis*, which was by far the most plentiful *Meligethes*; it occurred in flowers of *Hieracium*, from which I also took *Olibrus liquidus*; the latter I obtained almost exclusively in one small spot between Giltar and Lydstep, but I found *Meligethes* at Lydstep, Giltar, Penalby Burrows, and on Tenby sand-hills close to the town.

Hemiptera were fairly plentiful, but I found nothing worth mentioning, except perhaps, *Verlusia rhombea* and *Picromerus bidens*.

Of the *Hymenoptera*, *Halictus cylindricus*, *Cerceris arenaria*, and *Pompilus plumbeus*, were abundant; and I found one specimen of *Ammophila sabulosa*. I failed to find *Harpalus melancholicus* and *Therapha hyoscyami*, of each of which I took a specimen on the sand-hills some years ago.—Id.

Drepanopteryx phalænoides, L., in Scotland: a re-discovery.—As it is nearly twenty years, I believe, since we have heard anything about *D. phalænoides* as British, it is gratifying to be able once more to confirm the existence of such an interesting Neuropterous form in this country.

On September 18th Mr. McLachlan, Mr. King and I made an excursion to the Mouse Glen, near Cleghorn, one of the best localities for *Neuroptera* in this part of Lanarkshire. Though cold weather had prevailed for some time before, we had a tolerably fine day, insects were out in number, and the locality quite maintained its reputation. While we were working the ground where *Adicella filicornis* occurs during the warmer months, an insect with a most deceptive resemblance to a dead leaf rolled into my net. When in London a few weeks earlier, Mr. McLachlan had shown me examples of *D. phalænoides* which he had brought home from the Schwarzwald, and with the striking appearance of these still fresh in my mind, I had no difficulty in recognising my capture. A few minutes later Mr. King secured another; no more were seen that day, and when Mr. King and I again visited the spot the following week, we got but one other example. Hazel and sloe were affected by it; but possibly it occurs on almost any aphidiferous tree or shrub. As far as is borne out by careful search over the parts of the Glen, the area of occurrence is co-extensive with that of *Adicella filicornis*, therefore restricted to one well-sheltered little corner. Not the least noteworthy point in connection with these captures is that the locality cannot be looked on as new, for Curtis mentions a specimen taken about fifty years ago by H. Walker near Lanark, which town is only two miles or so distant from the spot where our examples were taken.

I give here the substance of an interesting communication received from Mr. McLachlan, concerning the occurrence of this insect in Britain. It is indicated as British in Turton's edition of Linné (Syst. Nat.), 1806; but Turton included a good many striking things as British that were never confirmed. Leach constituted the genus *Drepanepteryx* in the Edinb. Encyc., 1815, probably from the citation in Turton. Curtis refers to the example taken by Walker; and Stephens figures one taken by Little at Raehills. In the Proc. Ent. Soc. Lond., New Series, vol. i, p. xlvi (Jan. 6th, 1851), we read:—"Mr. Douglas, on the part of Mr. Allis, exhibited a specimen of the rare Neuropterous insect *D. phalænoides*, taken by him at Bowness." And in McLachlan's Monograph of the British Neuroptera-Planipennia, the author refers to an example in his own collection taken at Windermere by Mr. Strouvelle. If Turton's citation be excluded as doubtful, we have, with those now recorded for the first time, seven British examples in all. The ascertained distribution appears to be entirely western, limited on the north and south by the Clyde and Lake District respectively. On the continent it is said to be not uncommon, and very widely distributed.—Kenneth J. Morton, High Street, Carluke: *October*, 1885.

Is Megalodontes (or Tarpa) plagiocephalus, Fab., really British?—Mr. Cameron, in the last number of this Magazine at page 119, introduces the above named species as British on the authority of a specimen in Shuckard's collection, bearing a label marked "from the British collection, Brit. Mus., Ap. 16, 42." Among the *Aculeates* which I possess from Shuckard's collection, I have three species bearing tickets identical with that described by Cameron, viz., *Crabro clypeatus* ♂ and ♀, *Cerceris auritus*, F., = *Ferreri*, V. d. L., ♂ and ♀, and *C. sabulosus*, Pz., ♂. The first of these is of extreme rarity in England, Shuckard in his "Fossorial Hymenoptera," p. 133, only mentioning "♂ in the collection of the British Museum," and Smith, "Cat. Brit. Foss. Hym.," &c., p. 154, only recording his own captures of a ♂ and ♀ at Weybridge, in 1848 and 1853. The second is not recorded as British either by Shuckard or Smith, and has not yet found a place in our lists; the third is not a great rarity although much commoner on the Continent than in this country. Now the fact that F. Smith, who was so well acquainted with the British Museum collection, does not mention any specimens in it in support of the claims of these species to a place in our list, is I think clear proof that he did not consider their claims sufficiently valid, and I think we should pause before admitting into our list a species, merely on the authority of "the British collection of the British Museum." No locality is given, and if *Megalodontes plagiocephalus* be accepted on such authority, *Cerceris Ferreri* should be so also, and the latter is such a distinct, well-marked species, that it could hardly have been overlooked till now by collectors.—EDWARD SAUNDERS, St. Ann's, Bromley, Kent: *3rd October*, 1885.

The habitat of Phytocoris distinctus.—Referring to the remarks by Mr. Douglas in last month's issue, p. 116, concerning *Phytocoris distinctus*; *Populus alba* is certainly not the only tree frequented by these insects. They occur not uncommonly on the limes (*Tilia grandifolia*) in the Cathedral Close at Norwich. They are often to be seen exercising themselves on the railings under these trees, but are very difficult to capture owing to their extreme agility.—H. J. THOULESS, Cathedral Close, Norwich: *October 10th*, 1885.

Eriopeltis festucæ, Fons., an addition to the British Coccidæ.—For several years I have seen this little Coccid on the grass *Festuca bromoides*, but not until I became interested in the *Micro-gasterides* did I take the trouble to examine it, and try to find out what it was.

The female in the autumn is clothed with a garb of white cotton, in which to pass the winter, and its appearance, would, for the moment, deceive the best and oldest Lepidopterist, should he be in search of ichneumon-cocoons, and he would, I feel certain, at once arrive at the conclusion it was an *Apanteles*-cocoon, from its size, shape, colour, and the way it is fixed on the grass-stem; but upon examination, with a lens, it would be a puzzle for him to account for the numerous short curly ends projecting from it.

The pupa-scales may be found about the middle of July, almost close to the roots of the food-plant; they are very small, and can only be obtained by pulling the grass up by the roots.

On the 22nd July, in company with Mr. J. Scott, I visited the locality where I had seen the females on several occasions. After being deceived several times by a seed (I believe a grass-seed), adhering to the fescue-grass, which looked very much like a scale, Scott at last obtained two scales, which afterwards proved to be a male and female; the male made its appearance two days after, while in transit through the post to Mr. Douglas; these were taken on the road leading to Whitsand Bay. On the 3rd of August, at Bickleigh, not far from the station, towards Shaugh Bridge, Scott and I obtained several females, clothed in white cotton, but not to such an extent as when taken in October; these were obtained low down on the stems, those found at the end of September and during October are well up from the soil, and very conspicuous. I have always found them in hedges facing the north. On October 19th I again visited the Whitsand Bay locality, which is reached from Plymouth by passing through Wiggall Farmyard, and found many females, which proved, on examination, by removing a part of the cottony covering, to be a mass of eggs.—G. C. BIGNELL, Stonehouse, Devon: *October 20th*, 1885.

[This species was first found in France on *Festuca phœnicoides* and *F. cæspitosa* described by Boyer de Fonscolombe, and figured (indifferently) in the "Annales de la Soc. Ent. de France," iii, p. 216; pl. 3, fig. 9 (1834), under the name of *Coccus festucæ*. It was afterwards referred by Dr. Signoret to a genus, and was more perfectly described and figured as *Eriopeltis festucæ*, in his "Essai sur les Cochinelles," p. 184; pl. 1, fig. 18; pl. 2, fig. 7; and pl. 8, fig. 3 (1877).—J. W. D.]

Reviews.

European Butterflies: by W. F. de Vismes Kane, M.A., M.R.I.A., Memb. Ent. Soc. Lond. Pp. xxi and 184, and 15 plates, 8vo. London: Macmillan & Co. 1885.

In some respects this book is got up on the plan of Kirby's "Manual," published in 1862, but it is on a much extended form. It reminds us of Wood's "Tourists' Flora," a useful work long out of print, and of which a new edition is much needed. It is of a handy, portable size, and may well serve as an indispensable travelling companion to all butterfly-collecting tourists and others. The descriptions seem to be excellent, and the local information is usually full. The 15 plates of crowded figures are reproduced from photographs. Naturally in those cases to which photography is applicable they are true, and excel any coloured figures that could be produced; but in other instances more or less failure is evident, and notably in the Fritillaries, which give one the idea of being all taken from the well-known dark varieties of these insects. The geographical area is limited to Europe proper, and the arrangement and nomenclature are as in "Staudinger." Curiously enough we find our old friend *Papilio Podalirius* figuring as *P. Sinon*, Poda. It is true that Staudinger did so designate the insect in the first instance, but in the "corrigenda" at p. 422 of his Catalogue he restored *Podalirius* (L., S. N., ed. x). The work should have an extensive sale; it supplies a want in being portable; much care has evidently been bestowed upon it, and it is well printed; the errors are few considering the large number of names of localities introduced. In a second edition the local information can be brought nearer down to date. A more complete list of Italian species was published by Antonio Curó in Bull. Ent. Ital., 1874, whereas our author only mentions the old list for the Kingdom of Sardinia by Ghiliani in 1852; and other analogous instances might be cited.

Elementary Text Book of Entomology: by W. F. Kirby, Assistant in Zoological Department, British Museum, and co-Secretary of the Entomological Society of London. 240-pp., with 87 plates, containing over 650 figures. London: W. Swan Sonnenschein & Co. 1885.

This book has been before us for several months. To a reviewer (if he know anything at all of the subject on which any particular book treats) first impressions are generally the best. Our first impressions were unfavourable; furthermore, immediately after the appearance of the work, some one was so enthusiastic in its praises as to state, amongst other things, that by its help "the insect must be a rare one indeed whose genus—and perhaps even whose species—the reader fails to determi[illegible]e without difficulty." Mr. Kirby estimates the number of known species of [illegible]nsects at about 222,000. The work is not a "Text Book." It is a labori[illegible]us compilation on which much time must have been spent for small useful purpo[illegible]s save that a considerable number of recorded statements are brought togeth[illegible]e but those to whom these generalities will be welcome are precisely those w[illegible] will find the dry details unintelligible. It is almost the first time that, a book of such pretensions, we fail to find the name of either printer or arti[illegible] The printing, paper, &c., are good; the errors (there is no list of errata) mu[illegible] be ascribed to the author—no printer or elementary entomologist would co[illegible] prehend what was meant by "fossorial *Lepidoptera*." The plates (the most attractive part of the volume) are suggestive of Olivier (Encyc. Méthod.), Chenu, and Wilson (Encyc. Britannica). All Butterflies and Moths appear to be legless, and in some other Orders (where neuration of wings is almost of primary importance) it is only charitable to suppose the artist must accidentally have had most abnormal individuals before him. An elementary text book should be modest and *correct in everything*, because its title indicates its educational aim; nothing is so difficult to eradicate as are first impressions.

OUR INSECT ENEMIES: by THEODORE WOOD. London: Society for Promoting Christian Knowledge. 8vo, 220-pp. 1885.

This is a companion volume to "Our Insect Allies,"* which we had occasion to notice at p. 140 of vol. xx. We consider it a considerable improvement on its predecessor, and its literary style is to be commended. The author evidently feels himself more untrammelled in dealing with *injurious* insects, more able to adapt himself to popular ideas, for are not *all* insects "injurious" from a popular point of view! Some of his reasonings are worthy of serious study. He may, we think, have occasionally accepted some still disputed points as pure "gospel," but he rejects others as being probably more hypothetical than anything else. The illustrations are scarcely so numerous as in the volume on "allies." But all are to the point: there is no introduction of extraneous figures for the sake of "effect." Occasionally they are rough. The number of books on our insect enemies is very large; this modest little volume compares favourably with any of them. The author is probably wise in not taking up the position of an "expert" in economic entomology, but his remarks on the encouragement and protection of birds should be seriously considered, and especially now, when a crusade is being advocated, almost to the length of extermination, against the sparrow, which is no doubt an enemy, but which, in our opinion, is equally an ally.

Obituary.

Prof. H. Weyenburgh died at Haarlem on July 25th; he was born, in the same town, on December 6th, 1842. After studying in Utrecht and in Göttingen, he went, under the auspices of the now venerable Prof. Burmeister, to Buenos Ayres, and in 1872 was appointed Professor of Zoology in the University of Cordova (Argentine Republic). Although this University (said to date from 1622) is the oldest in America, it had never taken a very prominent position in Zoological science until Weyenbergh's appointment. He established a Zoological Society; he started a most useful publication ("Periodico Zoologico"); he created a taste for zoological studies in his new home that cannot fail to produce the best results. More especially was he an entomologist, and his published papers concern nearly all Orders of Insects. A life of the greatest promise for the future, and of meritorious results in the past, has been prematurely ended. Weyenbergh was attacked by

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*"Errata Ridicula" is the title of a series of papers by Dr. Dohrn in recent Nos. of the "Stettiner entomologische Zeitung." He might add another item to his series of amusing "errata." We have seen this work quoted in a German publication as "Our Insect Alleys." This *might* have formed the heading for a chapter in the book now under consideration.

cancer, and came home for surgical treatment, but unavailingly. A set of thorough workers in Entomology (mostly German and Dutch, although the "foreign" population consists largely of Italians) established themselves in the Argentine Republic; one of the most prominent was Weyenbergh. We trust the science is now too well established there to sustain more than a temporary shock by the decease of one of its best expounders.

Entomological Society of London, *Sept. 2nd*, 1885: R. McLachlan, Esq., F.R.S., President, in the Chair.

The President made apologetic remarks, regretting that his absence from England at the last Meeting precluded him from personally congratulating his colleagues on the acquisition of a Royal Charter of Incorporation. He also stated, that on the 18th July he had the pleasure of assisting at the celebration of the 40th anniversary of the foundation of the Entomological Society of the Netherlands, held at Amsterdam. He desired to publicly thank that Society for the kindness and hospitality he had received on the occasion, and to intimate that their Dutch brethren wished to enter into still further cordial relations with British Entomologists.

Mr. C. O. Waterhouse exhibited living examples of *Eubrychius velatus* from Eastbourne, which he had found swimming freely amongst *Myriophyllum*. Also the larva of *Gyrinus marinus*; and a species of *Aleurodes* found in great numbers on fuchsia, the leaves of which they spotted.

Mr. Billups exhibited *Telenomus phalænarum*, Nees, bred from the eggs of *Pygæra bucephala*, and a large number of Aculeate *Hymenoptera* from Chobham.

The Rev. W. W. Fowler exhibited a specimen of *Deilephila livornica*, captured near Tenby two years ago.

Mr. Ralfe exhibited 18 examples of *Sesia asiliformis*, bred from eggs laid by a ♀ taken in a nursery at Coombe Wood; also *Cucullia scrophulariæ*, which had been four years in the pupa state, and an undetermined species of *Geometridæ* bred from eggs laid by a ♀ captured near Weymouth in August, 1883.

Mr. Adkin exhibited an undetermined species of *Lepisma*, which was common on account books kept in an iron safe in an office in London.

Mr. Jenner Weir exhibited specimens of *Batrachotettix bufo*, a singular toad-like grasshopper taken in the Kalahari Desert, South Africa, by Mr. Farini; they appeared to vary in colour in accordance with that of the sandy regions in which they lived. Also *Palpares immensus*, McLach., a large species of Ant Lion, from the same locality. Also cases of a species of *Psychidæ* (from the same district), forming silken tubes covered with sand and small pebbles. Also two immense spiders (from the same district), apparently a *Galeodes*, remarkable for curious coriaceous appendages on the hind legs, which might act as suckers. He further exhibited, from the same source, a living example of a large species of *Curculionidæ*, apparently a *Brachycerus*.

The President exhibited a large collection of Neuropterous insects of all Families, captured in July and August this year in the Schwarzwald, Baden. Their exact determination remained, in many cases, for future investigation. Although there were probably no new species amongst them, there were certainly some important points in respect to local distribution.

NOTES ON THE ACULEATE *HYMENOPTERA* OF GLOUCESTERSHIRE.

BY V. R. PERKINS, F.E.S.

During the past season I have, with the exception of about three weeks at the end of June and beginning of July, devoted a good deal of my spare time to the Aculeate *Hymenoptera* of this immediate district, and although I have been a great portion of the time single handed, I am glad to say that since the holiday season commenced I have had a very active companion in one of my nephews, and with his assistance we have made a very respectable collection, and if we have not added a new species, which is as yet doubtful, we have filled up several gaps among the rarer and more local kinds, concerning which I here send a few notes which, possibly, may be of interest to other collectors of these interesting insects.

Taking the season through I certainly consider it to have been a good one. In the early spring, when the blackthorn was in blossom, some of the *Andrenidæ* were in immense profusion, and I got nice fresh series of almost all the commoner kinds, together with *Nomada alternata*, Kirb., which was also plentiful at the same blossoms, while at the same time *Anthophora* and *Melecta* were here, there, and everywhere, about the fields and gardens. I will not take up space by giving a catalogue of the insects captured, but will simply enumerate some of the more interesting species, and add a few remarks upon them.

Among the *Fossores* I have captured the following:—*Myrmosa melanocephala*, Fab., *Pompilus niger*, Fab., *spissus*, Schiödte, and *pectinipes*, V. d. L., *Agenia variegata*, Linn., *Ceropales maculatus*, Fab., *Mimesa Dahlbomi*, Wesm., *Crabro tibialis*, Fab., *clavipes*, Linn., *gonager*, Lep., and *varius*, Lep.

Pompilus niger, Fab., is confined to the woods, but *spissus*, Schiödte, is all over the place; wherever we find the larger *Sphecodes* there we are sure to meet with *spissus;* can the wasp have any connection with the bee?, its prey consists of a large brown spider considerably larger than itself; *pectinipes*, V. d. L., is rare.

Agenia variegata, Linn., a wood insect and fairly common, but most difficult to catch, a net is next to useless, and the collector had much better rely upon his own nimble fingers if he would secure it, it frequents the decaying stumps of beech trees, whose bark has been warped and cracked with the rain and sun; under this bark it darts with the usual rapidity of these insects, and in a short time it will emerge just at the very place where it is least expected, and if missed is gone in a second not to return again; what it finds, except the wood-lice which congregate in these places, I do not know, but I caution those who want the insect not to remove the bark to secure it, for that will not answer. It is not so much affected by the sun as many of these insects usually are, and I have seen it quite late of an evening after others have retired.

Crabro clavipes, Linn., is found in the same places but it prefers those stumps that are sounder, and whose bark does not show signs of decay.

Crabro gonager, Lep., is also a wood insect, and has either been more plentiful, or we have discovered its habitat, for we have taken no less than eleven females this season; the middle of August is the time it makes its appearance.

Crabro varius, Lep., is not a wood insect, but occurs along the field banks and burrows in the places where the clay has slipped, and in other bare patches, preferring the steep inclines.

Among the rarer or more local Bees I will mention *Prosopis confusa*, Nyl., *Sphecodes gibbus*, Linn., *subquadratus*, Sm., *ferruginatus*, Schk., *hyalinatus*, Schk., *variegatus*, v. Hag., and *affinis*, v. Hag., *Andrena bicolor*, Fab., *angustior*, Kirb., and *chrysosceles*, Kirb., *Cilissa hæmorrhoidalis*, Fab., *Nomada alternata*, Kirb., *Fabriciana*, Kirb., and *flavoguttata*, Kirb., *Osmia fulviventris*, Panz., *aurulenta*, Panz., and *bicolor*, Schrk., *Bombus coqnatus*, Steph., and *distinguendus*, Mor.

Without any doubt the greatest capture of the season has been among the *Sphecodes*, the most difficult and puzzling of all the genera of Bees, and as all our captures in this genus have been carefully examined by my esteemed friend Mr. Edward Saunders, I cannot refrain from publicly thanking him for the vast amount of trouble he has taken in differentiating the species.

The first to be met with, about the middle of April, is *Sphecodes affinis*, v. Hag., this little bee occurs in the woods sometimes in company with *Halictus tumulorum*, Linn., or other small *Halicti*, and no doubt it breeds in the same places, but though it does burrow in the banks I have found it much more frequently among heaps of small stones that have been gathered up from the fields and laid by the side of a road, and in these it certainly breeds, and along with it here I have taken *Nomada flavoguttata*, Kirb., which looks as though it were its parasite, both bees being in about equal proportions. Then comes *subquadratus*, Sm., also a wood insect, towards the end of May it may be found flying along the deep ruts made by the wood carts in winter, and in these it makes its burrow; I have watched it burrowing away in these places several times, it digs away with great rapidity, and throws out the dirt exactly like a *Pompilus*. The next two species, *ferruginatus*, Schk., and *hyalinatus*, Schk., belong more to the open country, their chief habitat seems to be along the steep bracks which are of such frequent occurrence in the pasture fields, at the base of the hills, which are locally called *meres*, and where the herbage is short and scanty, and in hard dry patches these bees are most likely to be found; they are very local and appear to be more social, breeding together in little colonies of ten or twelve individuals, and are most easily caught by standing quite still a little below the breeding place. One thing we have observed with regard to these bees, which I think especially worth noticing, is the attraction of males to the female. If a female is caught and kept a short time in the net, she will attract all the males in the neighbourhood towards her, and my nephew tells me that this is also the case after she has been killed if exposed in an open box; the great majority of our captures have been males. The last to be mentioned here is *variegatus*, v. Hag., this seems very rare, and we have only met with it in one locality, it is along these same "meres" in the hard dry patches that *Crabro varius*, Lep, is caught.

There is no doubt this genus is a very peculiar one, whether it is parasitic or not remains still an open question. My own opinion is that it is not, while my nephew, who has captured a great number this year, inclines the other way. I hope next season, now we know of their whereabouts, we shall be able to satisfy ourselves on this point. I have caught several in company with various *Halicti*, but I have also taken them where no *Halicti* occur. I have several times seen them digging their own burrows, which they do with the rapidity of a sand wasp; and I have also captured them with their heads covered with a yellow pollen.

The flowers on which they occur are thistles (especially the one with pale pink blossoms), ragwort, knapweed, wild parsnip, and the common *Crepis*; on this last plant it is more frequently met with than on either of the others.

Many of the *Halicti* have been very plentiful, but we have only met with one *zonulus*, Sm. .

Andrena angustior, Kirb., I took again in the woods in the spring, but it was certainly more scarce than it was last year; I only met with few specimens, though I searched diligently for it. Of *bicolor*, Fab., I took a nice series in the flowers of *Malva moschata*. *A. chrysosceles*, Kirb., was abundant on the *Euphorbia amygdaloides*. *Cilissa hæmorrhoidalis*, Fab.; of this local bee I had before this year taken only single specimens. It seems to be generally associated with the harebell. Smith says he never found it in any other flower, this is certainly not my experience, on the contrary, I have never found it on that flower, but while looking after *Andrena bicolor*, Fab., the first thing I saw in the Mallow flowers was this bee, and on them I succeeded in securing a good series, and I have taken ♂ and ♀ *in coitu;* only twice have I seen it in the Canterbury-bell, which is a common flower in the woods.

Nomada alternata, Kirb., has been double-brooded this year, the second brood made its appearance in August, and continued on the wing till the 19th September, on which day I captured the last specimens; these seem paler and brighter than the spring brood.

N. Fabriciana, Linn., which appears to be parasitic on *Halictus rubicundus*, Chr., was very plentiful in the spring, while *N. ruficornis*, Linn., was decidedly scarce.

Of the *Osmiæ*, *rufa*, Linn., swarmed; *aurulenta*, Panz., was more abundant than usual, and seemed particularly partial to the flowers of the common bugle—it is quite a wood insect; *bicolor*, Schr., as usual was on the slopes of the hills and in the woods, and seemed to occur pretty generally round the district, and we saw it several times conveying bents, which peculiar habit I drew attention to last year in this Magazine—of this last I captured three or four ♂; *fulviventris*, Panz., which generally burrows in posts, we found making its nidus along with *rufa* between the stones of my brother's garden wall. *Megachile centuncularis*, Linn., was there also in great numbers, making use of the leaves of *Circæa lutetiana* for its nidus.

Bombus cognatus, Steph., is generally scarce; we found one nest, and my nephew secured one very curious mouse-coloured specimen of this bee. He also captured in the early spring a very fine specimen of *Bombus distinguendus*, Mor., ♀, the only one that has yet occurred about here.

I have now one more observation to record, and that is on the neuration of the anterior-wings of some of the insects captured during this season. Variations in the anterior-wings of bees being very rare, are all worth recording, and I have met with no less than three distinct variations among our captures, and one of these I consider very remarkable.

1. In one *Sphecodes ferruginatus*, Schk., there are *two* sub-marginal cells in the right anterior-wing, while the left has only *one*, and with just a slight trace, or I should say, short petiole, where the start of the second nervure should be.

2. In another specimen of the same bee, there are *two* sub-marginal cells in the right anterior-wing, and *three* in the left.

Smith, in the "Entomologists' Annual" for 1858, records the capture of a specimen of *Sphecodes rufescens*, in which the anterior-wing (he does not mention which) has the second sub-marginal cell obsolete.

3. The third instance of variation occurs in a specimen of *Halictus villosulus*, Kirb., which has only *two sub-marginal cells on either side*, both anterior-wings being exactly alike, and decidedly different in their neuration to any *Halictus* I have ever seen.

Wotton-under-Edge:
October 17*th*, 1885.

DESCRIPTION OF THE LARVA OF *PTEROPHORUS COSMODACTYLUS*, H.-S., = *PUNCTIDACTYLUS*, STEPH.

BY GEO. T. PORRITT, F.L.S.

I have to thank most sincerely Mr. Eustace R. Bankes, of Corfe Castle, and Mr. Nelson M. Richardson, of Llangennech, for the trouble they have taken in helping me to an acquaintance with the larva of this species.

On the 8th of August, 1884, I received from Mr. Bankes about a score of larvæ which he had collected from *Stachys sylvatica* as "*Pterophorus acanthodactylus*," and I made careful notes on them for that species. The first two imagos which emerged—on August 17th and 19th respectively—were *acanthodactylus*, but, to my astonishment, the next specimen, on the 21st, and every one following, were *cosmodactylus!* I had described two distinct varieties of the larva, but as they had so much in common I had never suspected they might belong to different species; and being also quite ignorant as to which larvæ had produced *acanthodactylus*, and which *cosmodactylus*, it became necessary to wait for further specimens before anything satisfactory could be ascertained. In the middle of September, Mr. Richardson forwarded to me alive two fine ♀ of *cosmodactylus*, which he had beaten out of furze bushes at Aberayron, in Cardiganshire, with the information that he almost always took the ♀ in the autumn in such circumstances, and he had no doubt they hibernated in the bushes, and deposited their eggs in spring or early summer. The two moths I placed in a pot of growing *Stachys*, and various dry leaves, &c., and covered over with gauze. The moths lived well into the winter, but on examining the pot, I think in January or February (I have no note of the exact date), I found they had died. I was, therefore, very pleased to receive in the middle of August last another consignment of eight larvæ from Mr. Bankes, from which I made fresh descriptions. From them I bred six *cosmodactylus*, but no *acanthodactylus*. The moths were bred from the larvæ described, and on comparing my notes with those taken the previous year, they corresponded so closely that I suppose all were taken from *cosmodactylus* larvæ; the alternative being that we have but one species under the two names; or the differences in the larvæ must be so slight as to be almost imperceptible. As the *acanthodactylus* I bred were the first specimens to appear, it is possible the species may have been in advance of *cosmodactylus*, and that the larvæ were in fact nearly over when Mr. Bankes collected them; but this year, although he searched early, he failed to find an *acanthodactylus* larva at all. It is now most necessary to have careful descriptions of larvæ which produce *acanthodactylus*, or still better, to rear larvæ from *acanthodactylus* eggs, and see if both forms of imago would be produced from them.

Length, about half an inch, and of the usual stumpy form when at rest. Head small, and narrower than the second segment; it has the lobes rounded and is highly polished; body cylindrical, attenuated a little posteriorly, each segment plump and distinct, making the divisions clearly defined; skin soft, and sparingly clothed with short hairs.

There are two very distinct varieties.

In var. I (which, judging from the larvæ sent me, is the rather commoner form) the ground-colour is a clear purplish-pink; head very dark sienna-brown, almost black; the smoke-coloured dorsal vessel shows through as the dorsal stripe; sub-dorsal stripes clear white, and very conspicuous; below them is a narrow and interrupted white line, and another about the same width, but being tinged with pink is not so pale, along the spiracles: hairs white. Ventral surface semi-translucent, yellowish-grey; pro-legs purplish-pink on the outside; anterior legs of the dark sienna-brown of the head, but with paler rings.

In var. II the ground-colour is bright pale green, the markings same as in var. I, except that the white stripes are scarcely so conspicuous; in some specimens the smoky medio-dorsal vessel is tinged with pink; and the ventral surface and pro-legs are of the same bright green as the dorsal area.

Some few larvæ of those received in 1884 were intermediate between the two varieties.

The pupa is attached to the food-plant by the tail, and two somewhat curved pointed protuberances, which spring from the back, give it a curious appearance. As in the larva, there are two distinct varieties, a purple form and a green form, but each having oblique dark markings.

In 1884, the first imago emerged August 21st, this year on September 6th.

Huddersfield: *November 7th*, 1885.

THE LARVA OF *PÆDISCA OPPRESSANA* AND ITS HABITS.

BY JOHN H. WOOD, M.B.

In the course of his valuable "Notes on British Tortrices," Mr. Barrett has given us (Vol. xx, p. 267) descriptive accounts of the larvæ of all our *Pædiscæ* with the exception of three. With one of these three, *P. oppressana*, I had the good fortune to become acquainted four seasons ago, and in each succeeding year I have been able to renew acquaintance with it. Most of our books are silent on the early stages of the insect, but Dr. Knaggs in his "Guide" says, in the bark of poplar and Merrin's Calendar gives September as the time of feeding—conclusions formed I suspect on the circumstance that the perfect insect appears early in the summer, and has an evident affection for the trunks of poplar. But if the Entomologist wants to find it, let him search the terminal buds on the short side-spurs of the black poplar (*Populus nigra*) in March and April—if he see a small brown somewhat curved projection standing out from the bud, which on closer inspection turns out to be a hollow tube of "frass" communicating with the interior, he may know that he has found *oppressana.* The only insect I am acquainted with that could be mistaken for it would be *Hedya aceriana*, but the latter feeds later in the year, and the frass-tube instead of projecting at right angles from the bud lies flat upon it. I have hitherto failed to learn where the egg is deposited or when it hatches. I have confined the perfect insect without getting eggs, and have carefully examined the buds early in the year without discovering traces of larvæ, where afterwards at the end of March I have found them present. At that time the larvæ, little purplish-brown creatures with rather conspicuous hairs, were rather more than one line long and were actively engaged feeding in the bud. And were I to venture an opinion it would be that the larva lives through the winter closely hidden within a bud, into which it penetrates by an opening too small to be detected, and when the approach of spring awakens it to renewed activity, it then for the first time constructs the characteristic frass-tube, to serve as a general refuse-pipe and ventilator. The bud occupied in March gets eaten out and killed, and then some time in April the larva passes to another, within which it remains until it leaves it to spin up among rubbish in the first or second week in May. The last bud attacked has its growth and development retarded but is not killed, for the tree has begun to shoot and can resist the injury.

The larva is semi-transparent, somewhat shining, short, fat, and soft-looking, and of a pale brown colour. Head very small, deep black. Thoracic plate and prolegs also deep black. A small black plate on anal segment.

Tarrington, Ledbury:
November, 1885.

DESCRIPTION OF A NEW MARITIME FLY BELONGING TO THE FAMILY *SCATOMYZIDES*, FALLEN.

BY R. H. MEADE.

The following Dipteron occupies a position intermediate between those in the genera *Scatophaga* and *Cordylura*. It has the elongated horny proboscis with the numerous vibrissæ, of the species in the former genus, and the sub-cylindrical, incurved, clubbed male abdomen of those in the latter.

I propose to place it in a new genus, which I shall call *Ceratinostoma*. Schiner describes a new *Cordylura* (*lurida*), which, from his account, should also be placed in the new genus.

CERATINOSTOMA, *g. n.*

Gen. ch.—*Caput modice latum; oculi sub-rotundi, genas ne longe tegenti; antennæ breves, truncatæ, epistoma distantes; arista tenuis, plumata, articulo secundo producto, et spissato; setæ orales plures; proboscis elongata, acuminata, cornea; palpi longi, filiformes, sub-clavati. Thorax ellipticus. Abdomen* 6-*annulatum, mare sub-cylindricum, fusiforme, apice incurvato clavato, feminâ sub-ovatum, ano acuto. Scutellum* 4-*spinosum. Alæ abdomine longiores. Pedes validi, tibiis setosis. Corpus parce pilosum.*

C. MARITIMUM, *sp. n.*

Plumbeo-nigricans opacum, thorace olivario-fusco pollinoso, sub-striato; palpis pallidis, breviter nigro-setosis; proboscide nigro-picea; pedibus plumbeis, tibiis posticis intus villosis, tarsis omnibus subtus fulvo-hirtis. Long., ♂ *et* ♀, 8 *mm.*

Head: eyes rather small, oval, widely and nearly equally separated in both sexes; frontal stripe black, having a brownish tinge on the vertex, and being velvety black in both sexes in front over the antennæ; face extending somewhat obliquely backwards; epistome but little prominent; cheeks extending below the eyes, having their front part, together with the face, of a silvery-white colour with blue reflections; hinder part of the cheeks, with the occiput, bluish-black, clothed with soft tawny hairs; frontal bristles extending in a single row along each side of the frontal stripe, from the vertex to the base of the antennæ; those in the posterior half of each row turning outwards, and those in the front half inwards: oral setæ rather short, six to eight in number on each side; antennæ black, the first joint abbreviated, the second somewhat elongated, having a reddish-brown or grey tinge, with white reflections on the distal margin, and armed with short black bristles; the third joint oblong, rounded or blunt at the end, and about one and a half times as long as the second; arista short and mostly somewhat geniculated, the first joint abbreviated, the second two or three times longer than the first, and together with it considerably thickened and clothed with short pubescence; the third joint slender, four or five times longer than the two others together, feathered with yellowish hairs of moderate length along its basal half, and having the distal half or apex bare; proboscis pendulous, rather longer than the depth of the head, pitchy-black, horny, with the apex pointed in front, and having two small lips turned backwards. Palpi clavate, nearly as long as the proboscis, whitish-yellow, clothed with short black bristles, and long soft tawny hairs. Thorax of a dull lead or slate colour, somewhat arched, having a distinct transverse suture, and clothed on the dorsum with short thick tomentum of an olive or tea-green colour, which is arranged in irregular shaped but symmetrical patches, broken at the suture; leaving a central longitudinal pale stripe and a pale spot on each shoulder; there are only a few fine setæ on the dorsum, but a number of shortish strong spines irregularly distributed on the sides. Scutellum slate coloured, with some olive-green tomentum on the sides and apex; having four long setæ and numerous short black hairs. Abdomen oblong-ovate (spindle shaped), and sub-cylindrical in the male, with the apex incurved and thickly clubbed, the hypopygium being large and furnished in front with two black, horny, pointed processes; in the female oval, and pointed at the extremity; it is of an uniform dull leaden colour in both sexes, immaculate, and almost smooth, having only a few minute black hairs on the surface; there are six segments, the first is very short, and so closely joined to the second, that they look like a single long one; the third, fourth and fifth are nearly equal in length, and so is the sixth in the female, in the male it is globose and partly incurved; in some specimens the posterior edges of the segments have a pale yellow tinge. Wings rather long, of a pale yellowish-brown colour, with black veins; the third and fourth longitudinal veins diverge gradually from each other from the site of the internal transverse to the apex of the wing, which is placed almost in the centre between their points; the internal transverse vein is situated a little beyond the point of termination of the second branch of the first longitudinal, and considerably beyond the middle of the discoidal cell; the external transverse is straight and upright, placed nearly one-third nearer to the internal transverse than to the extremity of the fourth longitudinal; the costal vein is very slightly ciliated and without spine. Alulets small, white, with yellowish-brown margins, and ciliated with long pale yellow hairs. Halteres with brown stiles, and yellowish-white knobs. Legs of an uniform slate-grey colour, with large whitish pulvilli and long black claws; the tibiæ are all armed with numerous long bristles in both sexes, but the coxæ and femora are almost destitute of setæ; the front surfaces of the fore coxæ, and the under-surfaces of the mesosternum (triangular plate between the fore and middle coxæ), as well as those of the hind coxæ, are clothed with tufts of soft yellow hairs; the fore-legs have the femora somewhat thickened, and furnished with short soft yellow hairs on their under-surfaces, mixed with short black ones, which also cover their outer and upper sides; the tibiæ have four or five long bristles projecting from the distal halves of their under-surfaces; their outer sides and extremities are also armed with a number of spines; the middle of the inner and under-surfaces is also clothed with short adpressed golden-yellow hairs, which extend along the whole under-surfaces of the tarsi; the middle legs have the femora almost smooth, the tibiæ armed with a few spines or bristles; and the tarsi similarly but more shortly clothed with yellow hairs than in the other legs; the hind-legs have the femora clothed with short soft yellow hairs on their under-surfaces, and have a few short black spines along their upper and outer sides, which are also covered with short black hairs; the tibiæ are somewhat curved, are furnished along their inner surfaces in both sexes with soft black hairs of moderate lengths, and are armed on their outer sides and ends with long black spines; the inner extremities of the tibiæ, and under-surfaces of tarsi, are clothed like the other tarsi with golden hairs.

This interesting fly seems to be widely distributed on the British coast, but is of rare occurrence. It lives among the remains of sea weed and other marine rejectamenta above high water mark. The first specimens I saw were kindly sent to me for identification by Mr. W. H. Harris of Cardiff,* who captured them on the Welsh coast, in September, 1884. He found another pair near Cardiff this last summer (1885), and also a single specimen at Ilfracombe in July. I captured a pair myself (♂ & ♀) at Douglas, Isle of Man, on June 20th, 1885, in company with numerous specimens of *Fucellia fucorum*, *Scatina litorea*, and other marine flies; but though I searched carefully on many subsequent days, I never met with another individual.

Bradford, Yorks.:
November, 1885.

DESCRIPTIONS OF THREE NEW SPECIES OF *LYCÆNIDÆ*.

BY HAMILTON H. DRUCE, F.E.S.

IOLAUS SILARUS, *n. sp.*

♂. Above. Primaries brilliant purple-blue, with the apex, costal and posterior margin black. Secondaries bicaudate, brilliant blue, with the costal margin broadly, and the posterior margin narrowly, black. The lobe, with a black margin, reddish-carmine, shaded with violet. A black patch between the sub-median nervure and the 3rd median nervule containing a small indistinct red spot, also a small black spot between the 2nd and 3rd median nervule containing an indistinct red spot. Under-side glossy white, posterior-wing with a distinct sub-marginal straight red linear band running from above the apex into a red spot between the 2nd and 3rd median nervules. The lobe red, shaded with violet, and a black spot. There is also an irregular broken black line above the lobe, extending to the 2nd median nervule.

♀. Above. Primaries violet-blue, whitish at the junction of the 2nd and 3rd median nervules with the median nervure. The apex, costal and posterior margin greyish-black. Secondaries violet-blue, with the apex, costal and posterior margin greyish-black, crossed beyond the middle by an irregular black band, bordered between the sub-median nervure and the 2nd median nervule with brick-red. The lobe reddish-carmine.

Antennæ black. Palpi black above, white below. Legs white.

Expanse, ♂, 1⅓ in.; ♀, 1⅜ in.

Hab.: Delagoa Bay, East Africa. Mus. Druce.

This species is allied to *I. Julus*, Hew., from which it may be easily distinguished by the unbroken linear band on the under-side of the secondaries, and the spotless white of the primaries in both sexes.

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* The author of some interesting papers, with excellent illustrations, upon the *teeth* of flies, *published* in "Science Gossip."

Spindasis Clymenus, *n. sp.*

♀. Above. Primaries creamy-white, with the costal margin, the apex, the posterior margin, and the anal angle, dark brown, a brown spot about the middle of the cell, bordered by the median nervure, and another at the end of the cell extending slightly beyond. Secondaries bicaudate, creamy-white; anal angle rather broadly brown; slightly dusted with silver on the posterior margin close to the anal angle. Under-side: primaries same as above, excepting an indication of a brown band beyond spot at end of cell, extending from the costal margin half-way between the 2nd and 3rd median nervules, and a small spot in the cell close to the base. Secondaries yellowish creamy-white, the posterior and anal margins with a black fringe; the anal angle ochre-yellow, containing two black spots encircled with silver scales. A narrow black streak reaching from the anal margin to near the sub-median nervure blended with a faint silver line; below this and parallel to it is a rather broad silver streak. Also a blackish streak at the base of the sub-median nervure running downwards. Head, thorax, and anal tuft brownish-yellow. Abdomen white, with the base of each segment brown. Antennæ brown.

Expanse, 1½ in.

Hab.: W. Africa, Cameroons (*Fuller*). Mus. Druce.

This species is quite unlike any with which I am acquainted.

Neocheritra Theodora, *n. sp.*

♂. Above. Primaries black, with the basal third thickly sprinkled with bluish-green scales, except along the costal margin, which is greyish, gradually merging into the black beyond. Secondaries bluish-green, changing into blue towards the anal angle, at which there is a black spot, the sub-median nervure being produced to a long white tail, with a pale blue central line for half the length, also a pure white projection on the third median nervule, the apex black, and the discoidal cell clothed with a thick covering of glossy greyish scales. There is a quadrate black spot between the 3rd median nervule and the sub-median nervure, between which and a black margin there is a whitish patch. The black margin extending only between the sub-median nervure and the third median nervule, and at the apex. A white fringe commencing just above the second median nervule and gradually deepening till it reaches the base of the long tail; also a trace of a black spot between the 2nd and 3rd median nervules.

Under-side. Primaries ochre-yellow, deepening to brown-yellow at the apex and along the posterior margin, with the exception of the inner margin, which is of a glossy grey colour. Secondaries with the anterior half ochre-yellow, slightly darker at the apex, the posterior half white with two sub-marginal rows of four irregular black patches, the fourth, counting from the abdominal margin, the smallest and more brown than the others. The inner about half the width of the outer. Base of tails blackish-brown.

Antennæ white, tipped with black; thorax and base of abdomen bluish-grey.

Expanse, $1\frac{7}{10}$ in.

Hab.: Elopŭra, N. Borneo (*Pryer*), in March. Mus. Druce.

This species, though closely allied to *N. Amrita*, may be easily distinguished by the much greener colour of the wings, and in that the green colour runs in a line from primaries to secondaries. The tails are also considerably longer, and it is a more robust insect.

43, Circus Road, London. N.W.:
November, 1885.

A WORD RESPECTING *CALLEREBIA HYBRIDA.*

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

I do not wish to combat Mr. Graham-Young's views respecting *Aulocera*, which are, no doubt, quite correct from his point of view, but it is only fair to myself to call attention to the fact that I never described *Callerebia hybrida* as a species; but, as the name implies, regarded it simply as a cross between *C. Annada* and *C. Nirmala*; it was, indeed, raised to the rank of a species by Messrs. Marshall and De Nicéville, but it is hardly fair to tax me with the faults of others: one might as well become a godfather at once; I have not the least objection to answering for my own sins: that I did not describe the form, or series of forms, as a species will be evident if I reproduce here all that I ever gave to the world respecting *C. hybrida*:—

"CALLEREBIA HYBRIDA.

"Dr. Watt obtained a series of a *Callerebia* exhibiting intermediate forms between *C. Annada* and *C. Nirmala*. In the coloration of the under-surface of the primaries they agree almost entirely with *C. Nirmala*, but show the sub-marginal stripe strongly as in *C. Annada*; on the under-side of the secondaries they are coloured like *C. Annada*, but have rounded ocelli varying in number from two to five. In expanse they are intermediate, and, therefore, correspond with *C. Scanda* in this respect.

"N.W. Himalayas, up to 6000 feet."

If the above can be regarded as the description of a new species, I can only say that the Catalogue of Staudinger and Wocke abounds with such species, nay, more, that the species of Petiver and others must be adopted as having a prior claim to those of Linnæus, for *Papilio sulphureus* or *Papilio candidus*, with a description appended, although only intended as part of the description, have equal claims to *Callerebia hybrida*. If it be replied that I label the forms *C. hybrida* in the collection, I admit the fact, and also that I label the Aden series of *Limnas* "ancestral tetramorphic species," yet nobody would suppose that the latter represented a specific name.

British Museum: *November*, 1885.

NOTE ON SOME BRITISH *COCCIDÆ*.

BY J. W. DOUGLAS, F.E.S.

During the winter and spring of several recent years I collected the male scales of *Lecanium* attached to the branches of different trees, hoping to get therefrom the imago, but always without result; and I now believe this was because the scales were gathered too soon, and the tenant died, or that they were collected too late, that is, that the imago had previously come out. However, this year I collected some male scales from hawthorn early in April, and in the last week of the month I had the pleasure of obtaining from them some perfected forms (*cf. ante* p. 14).

Thus encouraged, I collected from several trees in the garden (sycamore, horse-chestnut, hazel-nut, apple, cherry) a good many of the white male scales of *Lecanium*, leaving them attached to the bark; except when the shoots were upright, as in the case of the hawthorn already alluded to, these scales were always on the under-side of the shoot, either of the growth of the last or the previous year; they were placed by me, each kind separate, in wide-mouthed glass bottles covered with gauze. Some (it was soon seen by their transparency) were empty, the imago having emerged; many contained dead pupæ, or even perfected insects; and others yielded perfect insects, which, before coming out, betrayed their presence by the protrusion from one end of the scale of two long, white, delicate filaments, which lay horizontally on the bark for a day or two before the emergence. The opposite end of the scale was always tightly adherent to the bark.

I did not in any instance see the actual exit from the scale, which it is well known is effected backwards; but I noticed in some cases that a day or so before it occurs the posterior portion of the scale is raised up from the bark, and the wings of the imago are clearly visible beneath, indeed, the ends of them project a little beyond the end of the scale; this position and condition being maintained for some hours.

The emerged males live but a few hours. They cling tenaciously to the bark of the twigs, and move about on them slowly without animation.. The wings overlap each other horizontally above the abdomen, and considering their great development and the large size of the thorax, it might have been supposed that the insects had great power of flight, but it is not so, for the flight amounts to scarcely more than jumps with extended wings; the insect, after spreading these out, hesitates for an instant before springing, just like many beetles do.

At page 14 *ante* I have adverted to Dr. Signoret's remark respecting the scales of the ♂ of *Lecanium genevense* and *L. prunastri*, to the effect that the latter exhibit a rugosity which is not found in the former, and hence I was inclined to believe that some scales I had found on hawthorn, and which had this character, were those of the latter. I am now of opinion that this rugosity is not to be relied upon as a specific character, for I find it exists normally in the male scales of all the species I have found, but that it often gets abraded by adventitious circumstances, leaving the scale quite smooth, or it becomes removed only in part. The male scale of all the species has on its summit a raised oval ring; on this the minute tubercles forming a coronet are fixed, and when they are removed the smooth ring remains. I apprehend the scales of *L. prunastri* have the same form of coronet, but as I have not been fortunate enough to find any on the sloe, I cannot say if they differ in any way from those having a like form found on the hawthorn, such as I have indicated, nor can it be stated with certainty if the species be distinct from *L. genevense*, for it does not appear that the ♂ imago of *L. prunastri* is known. In the meantime *L. prunastri* is not to be reckoned as a British species; its distinctness also remains to be proved.

I have now the following species found in Britain:—

Lecanium aceris, Auct., from sycamore, ♂ and ♀ scales, ♂ imago reared.
L. æsculi, Koll., from horse-chestnut, ♂ and ♀ scales, ♂ imago reared.
L. pyri, Schrk., from pear and apple, ♂ and ♀ scales, ♂ imago reared.
L. genevense, Targ.-Tozz., from hawthorn, ♂ and ♀ scales, ♂ imago reared.
L. coryli, Linn., from hazel, ♂ and ♀ scales, ♂ imago reared.
L. tiliæ, Linn., from lime trees, ♀ scales.
L. capreæ, Linn., from willows, ♂ and ♀ scales.
L. rosarum, Snell. v. Vollenh., from cultivated roses, ♀ scales.
L. persicæ, Linn., from peach trees, ♀ scales.
ditto ?, from plum trees, ♀ scales, ♂ imago.
L. ribis, A. Fitch, on red currant and gooseberry bushes, ♀ scales only. I have never been able to find a male in any stage of life, although the scales are very abundant. The species is probably agamous, like *L. hesperidum*.
L. ———— ?, ♂ and ♀ scales on cherry trees (*Prunus cerasus*). The perfected males died in the scales.
L. ———— ?, ♂ and ♀ scales on laurel (*Prunus laurocerasus*). No males came out.
Eriopeltis festucæ, Fonsc., on *Festuca bromoides*, near Plymouth (Bignell).
Pulvinaria oxyacanthæ, Linn., on hawthorn, one example. The species is easily recognised by the white cottony pad exuding from under the flattened scale. Réaumur's figure of the scale is more regularly cordate than my example.
Mytilaspis pomorum, Bouché, abundant on apple trees.

From the terminal shoot of a young oak tree at Tunbridge Wells, Mr. G. S. Saunders sends me some round, lenticular, yellowish scales, which, in some respects, agree with the description of *Lecanium Emerici*, but those scales occur not on *Quercus robur*.

From greenhouses I have:—

Pulvinaria camellicola, Sign. As Dr. Signoret says, the scale falls off and leaves the cottony mass enveloping the eggs, which increases and forms a conspicuous white linear object, half an inch in length, adherent to the under-side of the leaf of camellias.

P. vitis, Linn., from vines at Hertford.

Lecanium hesperidum, common on and injurious to orange trees. Signoret says (Ess. Cochin., p. 229), "Jamais nous n'avons pu trouver de mâles, et nous n'avons pas vu non plus de description le concernant." Comstock says (Report 1880, p. 335), "The male of this species has never been found, although it has been studied from the time of Linnæus down. The species is viviparous." There is no doubt it is agamous, at least for many generations. Shaw, however, says (Gen. Zool., vi, 190), "The male is a very small two-winged fly." This he represents on pl. 60, but it is not recognisable as a Coccid. The figure of the female certainly does not represent this species; it is more like the ♀ scale of *Lecanium oleæ*, which, according to Signoret, is sometimes found on orange trees and other plants; but the male is unknown. There is every reason, therefore, to believe that Shaw's figures are not applicable to *L. hesperidum*.

I have also two species of *Lecanium*, found on cultivated ferns, that I am yet unable to recognise; and one from *Sida abutilon*.

Stephens, in his "Catalogue of British Insects," gives the names of many species, of which no recent record of their occurrence in Britain exists, and it is very desirable that the statement should be verified. Such species are:—

Lecanium quercûs, L., on oaks. *Pulvinaria betulæ*, L., on beech. *P. carpini*, L., on hornbeam. *Gossyparia ulmi*, L., and *Lecanium ulmi*, L., on elms.

Several other species enumerated and described by Signoret in his "Essai" I believe are naturalized in Britain, and only await the hunter.

I may hereafter have to offer some observations on some of the unresolved points contained, alluded to or inferred in the foregoing notes, but in case the opportunity fails me, I think it is desirable thus to bring the *Coccidæ* under the notice of the coming men, as offering a field for research not surpassed in interest by any Order of insects; and not difficult to work in when once the proper method is acquired. The chief things to be borne in mind by investigators are that the greater part of the males of the species appear in the spring (April and May, some perhaps earlier), and that the males afford the most salient characters for distinguishing species. *Ars longa vita brevis est.*

8, Beaufort Gardens, Lewisham:
October 14th, 1885.

P.S.—*November 17th.*—I have this day found at Lee:

Chionaspis aceris, Sign., on maple trees.

C. fraxini, Sign., on ash trees.

They were on the wood of the last or previous year, never on the shoot of this year's growth, and, as might have been expected at this time of the year, were desiccated scales. But as both are new to our record of native species it is well to note them.

The Lecanid from oak, mentioned above, I believe, on further investigation, to be ***Asterolecanium quercicola***, Bouché, a species new to our list.—J. W. D.

ON A NEW GENUS ALLIED TO *CORYLOPHUS*.

BY REV. A. MATTHEWS, M.A.

The genus *Corylophus*, as at present constituted, contains insects of two very distinct forms; the one represented by the typical *C. cassidoides*, and the other by many of the species lately added to the genus. In the former of these classes the antennæ have only *nine* joints, and the thorax is large, and broader than the elytra, the shoulders of which are overlapped by the long and acute posterior angles of the thorax; while in the latter division the antennæ have *eleven* distinct joints, and the thorax is small, and narrower than the elytra, with its posterior angles either obtuse or rectangular.

It becomes, therefore, imperative that these groups should be separated; and since the name *Corylophus* must be retained for *C. cassidoides* and its allies, another name must be used for the remaining species of the present genus. For this latter group I propose the term *Corylophodes* as suggestive of their previous appellation. In the following description I have merely given such superficial characters as will serve to distinguish *Corylophodes* from *Corylophus*, and have not entered into any anatomical details, although in these points, especially in the organs of the mouth, the difference between the two genera is even more striking than in their external characters.

CORYLOPHODES, gen. nov.

Body more or less hemispheric, generally smooth and very shining. Head small, completely covered by the front of the thorax; eyes often large and prominent; antennæ generally short, eleven-jointed, very long and large, slightly recurved, 2nd large, but smaller than 1st, 3rd slender, shorter than 2nd, 4th—8th very small, transverse, 9th—11th forming a much incrassated, sub-foliate club. Thorax small, widest at the base, and circularly or ovally rounded in front, anterior margin more or less broadly reflexed, basal margin generally sinuated with the angles not produced. Scutellum generally small and rounded. Elytra large, entire, much broader than the thorax. Legs generally short, tibiæ sometimes flattened, tarsi four-jointed, 1st and

2nd nearly equal, 3rd very minute, 4th elongate and slender, claws faintly incurved. Venter composed of six segments of which the basal segment is nearly equal in length to the other five.

This genus will contain the following species, viz.: *C. marginicollis*, Le Conte, N. America; *truncatus*, Le Conte, N. America; *rotundus*, Sharp, Sandwich Islands; *suturalis*, Sharp, Sandwich Islands; *Championis*, sp. n., Cent. America; *torquatus*, sp. n., Cent. America; *orbicularis*, sp. n., Cent. America; *Jansoni*, sp. n., Cent. America; *castaneus*, sp. n., Cent. America; and several others at present undescribed.

Corylophus will retain, as far as I have yet discovered, three species only, viz.: *C. cassidoides*, Europe; *sublævipennis*, Europe; *tectipennis*, Atlantic Islands.

I have not yet seen the following three species, and, therefore, cannot say to which genus they properly belong: *C. fasciatus*, Erichson, Tasmania; *thoracicus*, Erichson, Tasmania; *peruanus*, Kirsch, Peru.

Gumley, Market Harborough:
November, 1885.

Danais Archippus (*Anosia Plexippus*) *in Dorsetshire.*—A coastguardsman (whose name I failed to note down), stationed at the Haven, Poole Harbour, in 1877, shewed me, in a wall-case, some insects he had caught there within a year or two of that date. Among them was a *Danais Archippus*. I told him it had probably flown ashore from some inbound vessel, and that butterfly amateurs would be willing to offer a good price for the specimen on account of the locality of its capture.—A. E. Eaton, Addingham, Penrith: *November 2nd*, 1885.

[It is just possible that the history of this specimen can be traced. Also it is quite possible that after this record, "this specimen" may re-appear in several quarters: *verbum sap.!*—Eds.]

Acherontia Atropos at Caledon, Co. Tyrone.—On September 19th, a very fine specimen of *A. Atropos* was brought to me by a workman of this city, who informed me that it had been caught by his son-in-law in a lodging house at Caledon. This is the first time that this insect has been recorded as captured in this vicinity. It is a very large specimen, measuring exactly five inches from tip to tip of its extended wings.—W. F. Johnson, Armagh, Ireland: *November*, 1885.

Pterostoma palpina in Roxburghshire.—On the 28th of last June I took a fine and perfect ♂ specimen of *Pterostoma palpina*, apparently freshly emerged, from inside the window of the front porch here. This I think is worthy of record, as I believe this species has not hitherto been recorded for Scotland.—A. Elliot, Caverton, Roxburgh: *November 9th*, 1885.

[Our correspondent is mistaken in thinking *Pt. palpina* had not previously been recorded in Scotland. In the "Scottish Naturalist," vol. ii, p. 87, Dr. Buchanan White indicates that it has been found in the districts of Tweed, Tay, Moray, Solway, and Clyde.—Eds.]

Sphinx convolvuli.—At p. 110 *ante*, Dr. Jordan, after remarking on the abundance of these moths this year, asks, "Are they immigrants or home-bred?"

In connection with this question, and the fact that the prevailing winds last August and September were easterly, the following extract from Mr. Cordeaux's paper on "The Spurn," in the "Naturalist" for August, 1884, may be of interest:—

"Spurn has also long been famous for the capture of rare insects, many of these, such as the *Lepidoptera*, unquestionably coming from beyond the sea. The observations taken at Heligoland by Mr. Gätke, and recorded from time to time in the migration reports, show that not only birds, but immense numbers of butterflies and moths pass that island, travelling from east to west. Some years since many Convolvulus Hawk-moths were washed up by the waves on the coast between Spurn and Kilnsea, having doubtless perished in crossing; and quite recently we received three Death's-head moths taken on vessels far from land in the North Sea."—H. Goss, Berrylands, Surbiton Hill: *November* 18*th*, 1885.

Gelechia tetragonella in Norfolk.—In July last, whilst collecting Micros on a salt-marsh near King's Lynn, I came across several specimens of what I considered to be a strange *Gelechia*. Upon arrival home, I thought they would prove to be only a form of *Gelechia senectella*; but chancing to read Mr. Stainton's note upon the new salt-marsh species, *G. tetragonella*, in the October number of this Journal, p. 99, the idea occurred to me that my specimens bore a remarkable resemblance to the insect there described. Not long since, Mr. Sang kindly sent me two of his specimens, which appeared to be identical with some of my own. When writing to him I mentioned this fact, and, acting upon his suggestion, I sent him some specimens for examination, and he has in due course informed me that my insects are undoubtedly *G. tetragonella*.

Contrary to Mr. Sang's experience, I took nearly all my specimens on the wing, between 7 and 8 o'clock in the evening. I noticed, however, that the insect after getting up from the grass, quickly re-settled, and was not easily put up again. Mr. Sang's observations on the appearance of this species when at rest I can corroborate, but as yet I can give no clue as to the probable food-plant of its larvæ, suffice it to say that *Artemisia maritima* was absent from the locality.—Edward A. Atmore, 3, Haylett Terrace, King's Lynn: *November* 19*th*, 1885.

Coleoptera in Thanet.—Besides those *Coleoptera* which I have already recorded from this neighbourhood, I have met, during the present year, with several species of greater or less rarity, of which the following seem worthy of notice:—

Odacantha melanura (9), Birchington; *Platyderus ruficollis* (3), Pegwell Bay; *Pogonus littoralis*, Birchington, abundantly; *Bembidium* 5-*striatum* (2), Broadstairs; *B. ephippium*, Birchington, abundantly; *Cnemidotus impressus*, *Noterus clavicornis*, *Laccophilus variegatus*, Birchington, sparingly; *Gyrinus distinctus*, Birchington, common, but confined to one ditch; *Enochrus bicolor*, Pegwell and Birchington, not common; *Laccobius alutaceus* (6), *L. minutus* (8), *Limnebius nitidus*, *Ochthebius bicolon*, *O. æratus*, Birchington; *O. punctatus*, Pegwell; *Phytosus balticus* (12), and *P. spinifer* (8), Kingsgate, in loose, dry sand; *Scopæus minutus*, S. Peter's; *Oxyporus rufus*, Pegwell; *Pseudopsis sulcatus*, Kingsgate; *Hydnobius punctatissimus* (13), Kingsgate, crawling on cliffs, Nov. 3rd and 4th;

Gnathoncus rotundatus, Margate; *Olibrus oblongus*, Pegwell and Birchington, abundantly; *Psammœchus bipunctatus*, Birchington, commonly; *Telmatophilus brevicollis* (2), Birchington; *Monotoma spinicollis*, Kingsgate; *Corticaria fulva* and *C. curta*, Birchington; *C. Wollastoni*, Kingsgate; *Heterocerus obsoletus*, Pegwell, common; *Aphodius porcus*, Kingsgate; *Athous difformis*, S. Peter's, three by sweeping at dusk; *Meloe cicatricosa* (6), Margate and S. Peter's; *Trachyphlœus alternans*, Birchington; *Tanymecus palliatus*, Pegwell, common, but exceedingly local; *Plinthus caliginosus*, Kingsgate; *Hypera julini* (2), Pegwell, bred from cocoons found in sweep-net; *Tychius lineatulus*, Kingsgate, commonly; *Ceuthorrhynchideus frontalis* (2), Kingsgate; *Phytobius velatus* and *P. leucogaster*, Pegwell and Birchington, not uncommonly; *Hæmonia Curtisi* (1) and *Coccinella 19-punctata*, Birchington, commonly; *Coc. mutabilis* (7) and *C. labilis* (1) Kingsgate; *Scymnus Mulsanti*, Pegwell; *Coccidula scutellata*, Pegwell and Birchington, abundantly.

On the 2nd inst., I again took *Bathyscia Wollastoni*, eight specimens in all, in the same manner as before. This is the more curious, inasmuch as the piece of ground from which I took them was dug for the first time this year, and the beetles must presumably have travelled for some little distance, in order to reach the potatoes.

Subsequently to my note upon the subject (*cf. ante*, p. 138), *Actidium coarctatum* occurred to me in even greater profusion; I took upon one occasion 133 specimens from about an egg-cupful of shakings, with it were a few *Ptilium foveolatum*, *Nephanes titan*, &c.—THEODORE WOOD, Freeman Lodge, S. Peter's, Kent: *November 5th*, 1885.

Soronia punctatissima and grisea, &c.—In the "Revue d'Entomologie" for this year, Nos. 4 and 5, there are several notes on distinction between closely allied *Coleoptera* by M. des Gozis, some of which are likely to be of use to British Coleopterists; one of these notes relates to the two species of *Soronia*: as a rule, *S. punctatissima* is very easy to distinguish from *S. grisea* by its larger size; smaller specimens, however, are of common occurrence, and may easily be confounded with larger specimens of the kindred species; even although it is quite true that *S. punctatissima* is a broader and more convex insect, yet practically it will be found that it is occasionally difficult to distinguish some specimens. M. des Gozis points out the following characters: in *S. punctatissima* the black markings on the elytra, a little behind the middle, are interrupted by a wavy yellowish band; this yellowish band or fascia is succeeded by a dark band, which is interrupted at the suture, a space near the suture remaining testaceous; in *S. grisea* these markings are just the same, but the hinder dark band is not interrupted, and covers the whole sutural space. I have tested this difference on some doubtful specimens, and find that in mature specimens it is a very great help; in the case of slightly immature specimens it does not seem to be so trustworthy, and, at all events, it must be regarded merely as an auxiliary character.

Aphodius fœtens and *fimetarius* are two insects that are perpetually giving rise to confusion, although they may easily be separated by the colour of the apex of the abdomen, which is red in *fœtens*, and black in *fimetarius* M. des Gozis, however, says that a more convenient character is presented by the apical region of the elytra, which in *fœtens* is finely punctured, but is still smooth and shining, and differs in no respect from the interstices on the disc; in *fimetarius*, however, it is rugose and dull, and thus differs very much from the interstices on the disc, which are smooth and polished. I have carefully compared specimens with a view to verifying this character, and find that although the apical region is certainly more punctured in *fimetarius* than in *fœtens*, yet this may be applied to the whole of the disc as well, as may be seen by examining them under a strong power; the difference, however, is very slight, but is much more apparent in some specimens than in others; as far as my experience goes, *A. fœtens* is a larger, stouter, and broader insect than *A. fimetarius*, usually darker coloured, and more shiny, but in neither of them, as a rule, is there a very noticeable difference between the apex and disc of the elytra, although, perhaps, there is enough to be a help in doubtful cases; had the distinction been a very obvious one, it would hardly have been so long passed over unnoticed.

Anthicus antherinus, L., and *læviceps*, Baudi. We do not possess the latter of these insects, as far as is yet known, but they are found in France, in the same localities, and, perhaps, some British collector may verify the latter among his series of *antherinus*, by the following descriptions given by M. des Gozis:—

Head and thorax thickly, finely, and almost rugosely punctured; apical black patches on elytra not covering the suture, but always leaving a ferruginous band between; anterior trochanters of male armed with a little sharp spine, at any rate in mature examples, occasionally simple. L. 3—3½ mm.... *A. antherinus*, L.

Head and thorax moderately, thickly and plainly punctured, the punctures separated by small, shining intervals; apical black patches on elytra covering suture, without leaving a band between; anterior trochanters of male armed with a long fine spine. L. 3½—3¾ mm .... *A. læviceps*, Baudi.

W. W. Fowler, Lincoln: *October 14th*, 1885.

Is the Genus Megalodontes (or Tarpa) really British?—With regard to Mr. E. Saunders' query respecting *M. plagiocephalus* in your last No. (p. 140), I find upon referring to the yet unpublished MS. of my monograph, the following observation:—"It will be observed that the evidence of the existence of *Megalodontes* as a British genus rests nearly entirely on the authority of Leach and Stephens. I can see no *à priori* reasons why the genus may not be expected to be native in Britain, yet bearing in mind the fact that some of the species recorded as British on the same authority have been proved to be erroneously recorded, and that no species of the genus has apparently been captured since Leach's time, I cannot help feeling very doubtful as to its being really native in this country." I intended to have inserted this note in my Synopsis, but forgot to do so.—P. Cameron, 20, Beech Road, Sale, Cheshire: *November 5th*, 1885.

[I fully share Mr. Cameron's suspicions as to the native origin of the genus, especially as it is composed of large striking saw-flies, with a most peculiar form and appearance. On the other hand we have the recent re-discovery of *Drepanopteryx phalænoides* fresh in our minds, and scarcely any entomologist would allow such an extraordinary insect as this to be passed by, unless absolutely deceived by its great resemblance to a dead leaf, combined with its habit of 'shamming dead.'—R. McL.]

Great swarms of Ephemeridæ on Lough Neagh.—On one of my many visits to Maghery, on the shores of Lough Neagh, I happened to be standing talking to Mr. Ross in front of his house. A steamer towing a barge had a little time before passed out of the canal on to the lake. Looking towards Derrywarra Island, I remarked to Mr. Ross that the smoke was taking a long time to clear off. He began to laugh, and told me that what I thought was smoke was flies. I was incredulous, but, on watching the appearance, saw that the apparent smoke, instead of blowing away, moved up and down, spread and contracted, but still kept over Derrywarra; in fact, it was a vast collection of *Ephemeræ* indulging in an evening dance.

The same day, when on Coney Island, I was struck by the remarkable appearance of the trees and shrubs with which the Island is covered. These were clothed in spiders' webs, so that they were quite white looking, and the man who lives on the Island told me that the spiders were always in great force at that time looking out for the flies.

The numbers of *Ephemeræ* were very great—the meadows along the Lough shores were full of them, and the edge of the Lough almost blackened with the bodies of those which had died.—W. F. JOHNSON, 2, The Seven Houses, Armagh: *November*, 1885.

Trichoptera from Belfast.—During a recent official visit to Belfast, my friend and colleague Mr. Barrett kindly collected such *Trichoptera* as came in his way. A list is here appended, with the idea that it may prove useful when Irish entomologists can work out a Trichopterous Fauna in the same manner as has recently been done for Scotland by Messrs. King and Morton in the pages of the "Scottish Naturalist."

Limnophilus marmoratus, Curt., *lunatus*, Curt., and *sparsus*, Curt., and *Stenophylax concentricus*, Zett., all at gas lamps in Belfast; *Silo pallipes*, F., Colin Glen; *Lepidostoma hirtum*, F., Cave Hill; *Crunœcia irrorata*, Curt., Colin Glen; *Beræa maurus*, Curt., Cave Hill; *Mystacides nigra*, L., River Lagan, very small; *Diplectrona felix*, McLach., Cave Hill; *Philopotamus montanus*, Donov., Colin Glen; *Polycentropus flavomaculatus*, Pict., Colin Glen; *P. Kingi*, McLach., Colin Glen, one very characteristic ♂; *Cyrnus trimaculatus*, Curt., River Lagan; *Tinodes wæneri*, L., River Lagan, and at gas lamps, very common; *Rhyacophila dorsalis*, Curt. (the ubiquitous), Colin Glen; *Agapetus fuscipes*, Curt., Cave Hill, common, excessively small.—R. McLACHLAN, Lewisham: *September 22nd*, 1885.

Review.

FOURTEENTH REPORT OF THE STATE ENTOMOLOGIST ON THE NOXIOUS AND BENEFICIAL INSECTS OF THE STATE OF ILLINOIS. Third Annual Report of S. A. FORBES, year 1884. Springfield, Illinois, 1885.

Mr. Forbes is the indirect successor (Drs. Le Baron and Cyrus Thomas intervening) to the late gifted B. D. Walsh, as State Entomologist for Illinois, and as a notable feature in this Report he has been at the trouble to compile a general Index for the whole series, which will be very useful to those who are so fortunate as to possess the whole. The present volume is based on the same plan as is usual in American State Reports, and shews an amount of care and minute observation equal to any of them. The twelve plates are full of figures characteristically drawn, but are a little rough as compared to those of some others we have seen. Two main divisions occur, viz.: Agricultural and Horticultural (the latter including what might more properly be termed Arboricultural). We cannot notice the articles in detail. A very useful feature is a short introductory summary for the year, in which it is stated that the general damage to crops in 1884 was less than usual, with a certain expression of lament that this was to be attributed more to providential than to human interposition. A good many new species are described, spread over nearly all Orders. We came across one item showing how imperatively necessary it is that scientific names be used in all works of this kind. At p. 80 " Cowslip " is incidentally mentioned, and we found that the Illinois " Cowslip " is not a *Primula*, but our well-known *Caltha palustris*.

HAGGERSTON ENTOMOLOGICAL SOCIETY.—The Annual Pocket Box Exhibition of this Society was held on Thursday, November 12th, and was very successful, a large number of members and visitors being present.

The exhibits were numerous and interesting; among others may be mentioned five *S. convolvuli*, and a *C. celerio* from Lynmouth, Devonshire, exhibited by Mr. Thornthwaite, who also showed many other species.

Mr. H. Jobson's box contained two *P. orichalcea*, and a series of *E. venustula*, *B. argentula*, *A. sulphuralis*, and *E. stachydalis*.

Three boxes of *A. alni* were shown by Mr. E. Cooke, who also bought some varieties of *C. villica*, having the spots on the anterior-wings confluent, and a series of *E. curvistrigana*.

Mr. Franklin exhibited the life-histories of several species; but the best exhibit of this kind was Mr. Pearson's case, containing twelve species all most carefully worked out and arranged, including the ichneumons in many cases. Mr. Anderson also showed two boxes containing preserved larvæ, and Mr. Tufnell had a box with a careful selection both of larvæ and imagines.

Perhaps the most recently captured specimens in the room were a series of *H. pennaria*, exhibited by Mr. Gray, of Redhill; while Mr. Russell's box attracted attention by a fine "IVI" variety of *S. irrorella*, a peculiar sandy-yellow form of *M. fluctuata*, &c.

Mr. Huckett showed a graduated series of varieties of *A. grossulariata*, and Mr. Harper's box contained varieties of *A. lubricepeda*, *E. angularia*, &c.

Mr. J. A. Clarke had a specimen of *C. celerio* captured in Hackney, also varieties of *L. Corydon*, ♀, and a living specimen of *A. Atropos*; while Mr. J. A. Cooper's rows of bred *E. orbicularia*, *E. porata*, and *P. syringaria* were much admired.

Of course varieties of *A. caja* were present, some light and dwarf specimens being shown by Mr. Gates, and a dark suffused specimen by Mr. Gurney.

Among other exhibits by members were Mr. Allbuary's confluent variety of *C. villica*, *S. dealbata*, *E. ochroleuca*, *P. rhododactylus*, and specimens of *Liparis dispar* taken this year at Bexley Heath. Dr. Sequeira's selection from his Devonshire captures included some splendid forms of *Y. elutata*, *C. picata*, *C. prunata*, *C. silaceata*, &c. There were also many *Coleoptera*, exhibited by Messrs. Pearson, Cripps, Lewcock, &c.

The visitors made considerable additions to the exhibits, the most interesting of which was Mr. B. W. Neave's very beautiful variety of *L. Alexis*, ♂, captured on Brighton Downs. This specimen has a series of long dashes on the under-side most regularly arranged in place of the usual markings.

Mr. Hawes showed a male *A. Paphia* much streaked with black, and also specimens of the bleached form of *S. Janira*; and Mr. J. Riches had a suffused specimen of *H. abruptaria*, taken at Hornsey Rise.

Mr. W. G. Pearce contributed specimens of *A. alni*, four *A. strigosa*, and one *S. ulvæ*, and very dark forms of *D. capsophila* were exhibited by Mr. Adkin; examples of *N. rubi*, *X. scolopacina*, and *X. rurea*, all showing much variation, were shown by Mr. Southey. Mr. Williams had several pretty forms of the common *O. dilutata*, and also a peculiar melanic form of *P. syringaria*. There were also a large number of excellent photographs of microscopic objects, sent by Mr. Gills of Bath, which added materially to the interest of the proceedings. Mr. Ralfe also exhibited some specimens, which, however, I do not notice.—ERNEST ANDERSON, Secretary [abridged by EDITORS].

ENTOMOLOGICAL SOCIETY OF LONDON, *Oct. 7th*, 1885: Prof. J. O. WESTWOOD, M.A., F.L.S., &c., Honorary Life President, in the Chair.

C. Donovan, Jun., Esq., of Glandore, Leap, Co. Cork, was elected a Fellow.

Mr. W. C. Boyd exhibited a series of a species of *Crambus*, from Lowestoft, allied to *C. contaminellus*, but which appeared to present certain differences from that species. Mr. H. J. C. Druce exhibited varieties of *Argynnis Aglaia* and *Hipparchia Janira*, captured by him at St. Moritz in the Engadine.

Prof. Westwood stated that he had been informed by Mr. Anstruther Thomson that a specimen of *Gonopteryx Cleopatra* had been really taken at Aldershot. Some discussion ensued as to the variation of *G. rhamni*, the distinctness of *G. Cleopatra*, and the increasing probability of continental (and other) *Lepidoptera* being found here, owing to the large importations of pupæ now made by the dealers in Natural History objects.

Mr. Jenner Weir exhibited a portion of a nest of a species of *Termitidæ* from S. Africa, in connection with a statement to the effect that the natives are said to utilise these nests for purposes of habitation. Also a large species of Entomostracous *Crustacea* from the Kalahari Desert, which appeared to have the same power of resisting drought as is known to obtain elsewhere.

Prof. Westwood exhibited specimens of a beetle found in S. Africa in imported boots, and which he was unable to distinguish from *Cis boleti*.

The Rev. Mr. Bickerstaff sent specimens of *Tropicoris rufipes*, taken outside the pro-Cathedral at Kensington.

Mr. Billups exhibited specimens of a *Lecanium* on exotic ferns; Mr. Douglas was not able to identify the species. He also exhibited further examples of the *Lepisma* shewn at the last meeting; it remained unidentified.

Mr. C. O. Waterhouse mentioned that he had seen examples of *Sphinx convolvuli* from Ramsgate, Yorkshire, and the Inventions Exhibition in London.

Prof. Westwood exhibited cylindrical tubes formed by the larva of an Homopterous insect—*Machærettia ensifera*, in Ceylon; the species was allied to our "Cuckoo-spit" insect, and the tubes were formed of indurated secretion. He also alluded to a notice in the report of the American Fisheries Commission, on the destruction of young fish by mosquitos, the insects piercing the heads of their victims.

Mons. Wailly exhibited a large collection of exotic *Saturnidæ*, bred in this country, and made observations thereon.

Mr. McLachlan mentioned that 3 examples of *Drepanopteryx phalænoides* had been recently captured in Scotland by Messrs. Morton and King (*cf. ante*, p. 139).

Mr. E. Saunders read a communication from Mr. F. F. Freeman, of Plymouth, concerning the capture of *Danais Archippus* in that town.

Nov. 4th, 1885 : R. McLACHLAN, Esq., F.R.S., President, in the Chair.

Messrs. A. J. F. Fokker of Zierikzee, and Van der Pohl of Holland, were elected Foreign Fellows, and Mr. J. Cosmo Melville of Prestwich, an Ordinary Fellow. Dr. C. A. Dohrn of Stettin, and Mr. P. C. T. Snellen of Rotterdam, were elected Honorary Fellows.

Mr. S. Stevens exhibited two examples of *Chœrocampa celerio* from Brighton, in very fine condition.

Mr. Jenner Weir exhibited a *Colias*, taken at Lewes, apparently *C. Hyale*, and pointed out that it was almost intermediate between *C. Hyale* and *C. Edusa*, var. *Helice*, and as Mr. Butler had once taken *Hyale*, ♂, *in copulâ* with *Helice*, he thought this example might possibly be a hybrid.

Mr. G. F. Mathew exhibited a very large series of *Hypolimnas Bolina* from islands in the Pacific ; many of them he had bred from single broods of larvæ ; the females were very variable, the males more constant. He was convinced that several of the so-called new species of the genus were mere variations of *H. Bolina*.

Mr. Bliss exhibited a small collection of *Lepidoptera* from Formosa River, W. Africa.

The Rev. W. W. Fowler exhibited a series of *Pelophila borealis*, from Armagh, Ireland, and remarked on a malformation in the tarsi that occasionally occurred (*cf. ante*, p. 138). He also exhibited the unique example of *Tachys parvulus*, taken by Mr. Smedley near Liverpool, and remarked that two other rare species of the genus, viz., *Fockii* and *4-signatus* might have been introduced into this country in ballast. He also brought the examples of *Cassididæ* exhibited by him in March last (*cf.* Ent. Mo. Mag., vol. xxi, p. 258), in order to shew that the colours were still preserved.

Mr. C. O. Waterhouse exhibited *Heliopeltis Antoni*, an Hemipterous insect damaging Cinchona plantations in Java. He mentioned that *H. braconiformis*, Walk., 1873, was synonymous with *Dulichius clavipes*, Walk., 1871 : both were from New Guinea.

Mr. McLachlan exhibited a sketch of a large grasshopper, taken in a hot-house near Birmingham, and remarked that it was probably identical with *Copiophora cornuta*, which had several times recently been found under similar circumstances in this country.

Mr. Fitch exhibited examples of *Eriopeltis festucæ*, Fonsc., taken near Plymouth by Messrs. Bignell and Scott, and new to this country (*cf. ante*, p. 141). Mr. Waterhouse said he had observed two larger species of *Coccidæ*, of similar nature, on grass.

Mr. Buckton communicated a letter from a correspondent in Portugal concerning the habits of *Phylloxera*.

Mr. Meyrick communicated a paper on *Lepidoptera* from the South Pacific.

THE HABITS OF *NONAGRIA CANNÆ.*

BY F. D. WHEELER, M.A.

For many years past this species has had a peculiar interest for me; as long ago as 1871, when I first commenced working the fens with an attracting lamp, it turned up at my light. For some years only a stray specimen or so occurred, all from various parts of the shores of Barton Broad; but in 1878 I was fortunate enough to light upon a spot in the same fens where *N. cannæ* seems to be something more than a mere straggler; at least, from that date to the present, I have never failed to take it there in greater or less abundance (chiefly the latter).

Like most moths, *N. cannæ* has very distinct habits of its own, a word or two on which may, perhaps, not be without interest to those who have had no personal acquaintance with this extremely local species. First as to time of emergence, my own experience would tend to make it a much later insect than is generally supposed. Twice only have I known single specimens to occur so early as the second week in August, while the bulk of my captures have been in September; in fact, I have invariably found *N. typhæ* well on the wing before any of its rarer congeners turned up. As soon as dusk sets in *cannæ* commences its flight, the females taking precedence of the other sex, so that of the very few I have taken on the wing half were secured before I lit my lamp, and only on two specially favourable nights have I known them to be attracted by the light. The males, on the other hand, fly from dark to about 10 p.m., or 10.30 at the latest, with a direct and moderately swift flight, but without any of the whirr and dash that characterize *typhæ*, and but just clearing the top of the herbage, or even flying through it where the stuff is long. They are powerfully attracted by light, and I have hardly ever known them to leave the lamp until, indeed, my invitations to enter a pill box became too pressing to be resisted. This peculiarity makes working for *cannæ* the very luxury of entomologizing; mooring your boat in a convenient creek, you rig up the covering, boil the kettle, and make all preparations for the night, hoisting your attracting lamp within a foot or two of the boat. Presently, as the dusk comes on, the first moths demand your attention; *Chilo forficellus* and *mucronellus* are still on the wing, with *Cataclysta lemnalis* and a late specimen or two of *Paraponyx stratiotalis* and other common things, but the bulk of the fen species are over, and soon this early activity is past, and scarce anything is to be seen save the bats and *Phryganidæ*, or, possibly, a few *Cidaria testata*, while the stillness of night settles down, broken only by the sound of wings as a flock of plovers passes over, or by the splash of the wild fowl feeding, and the otters that haunt the adjoining reed bed, or the musical hum of a distant threshing machine. Now is the time to return to the boat for tea, and if you have any love for solitude and the sounds of the night, pleasant, indeed, will be the time as you sit at the entrance of your boat-tent peacefully watching for your moths. Presently there will be the rush of a brownish *Noctua* dashing about the light, and after circling wildly for a minute or two, it will content itself with buzzing up and down the glasses of the lower lamp; this is *Noctua rubi*, a perfect pest in the fens at the close of the season. Soon come more *rubi*, till there will rarely fail to be three or four of them about the lamps. Keep a sharp look out and you will see among them one rather larger the rest, and with a preceptibly longer body. Now is your time—not that there is any hurry about it, for our friend is by no means inclined to leave the light—no net is required, take a pill box or cyanide bottle, and your first *N. cannæ* will soon be secured. Even if standing beneath your "pharos" and keenly on the outlook for visitors, you may easily fail to detect *cannæ* as its comes up, so low is its flight and so speedily does it make its way to the ground lamp. Moreover, our Norfolk specimens are rather brown than red, some, indeed, of them are getting on for black, and the colour helps to make them inconspicuous.

When the distant clock strikes ten, you may, if *cannæ* be your only object, give up and turn in for the night, but a few other things are now to be had; *Ennomos erosaria*, *tiliaria*, and *fuscantaria*, possibly an early specimen of *Nonagria lutosa*, and certainly one or two *N. typhæ*, though the latter is so much less attracted by light than is *cannæ*, as to give the impression that on this piece of fen the latter is the commoner insect of the two, a very mistaken notion, as we shall see.

The capture of *cannæ* is, however, attended by some drawbacks, and especially that, owing to its habit of flying through the herbage, it is almost always more or less worn when caught. I have, therefore, long been anxious to breed it, but have never succeeded until this year. All the information I was previously able to obtain from other entomologists was that *cannæ* had formerly been bred in small numbers from Yaxley, and was still obtained in the same way from a locality in Sussex, but that the pupæ were taken with those of *N. typhæ*, and were not recognised until the moths emerged. To this information I added from Treitschke the fact, that *cannæ* might be distinguished from *typhæ* by feeding and pupating with the head up instead of down. However, on working the *Typha latifolia* in the very place where I took *cannæ* on the wing, I found that I invariably got pupæ of *typhæ* and nothing else. Accordingly, I had quite made up my mind that there must be some mistake as to the food plant, and am the more glad to be able to confirm Treitschke's account.

In ordinary seasons the locality is inaccessible except by water, and the nature of the soil (a floating or "dancing" bog) makes it impossible to get to any distance inland. This year, however, the extreme dryness of the fens rendered it practicable with high boots, and a couple of boards for help at the worst places, to get almost anywhere, and I determined to avail myself of the opportunity. Devoting altogether about four days to the task, I searched, as thoroughly as possible, all the fen round my favourite locality, as well as some promising beds of *Typha* elsewhere; the result was a large number of pupæ of *N. typhæ*, and a very few of *cannæ*. The latter I found very easily distinguishable, the larva being greenish instead of putty-coloured, while the pupa is not only decidedly smaller than that of *typhæ*, but is also furnished with a very prominent and conspicuous beak containing the palpi. The distinction given by Treitschke, though usually correct, and in fact the best rough test, is not absolutely reliable, for I obtained one *cannæ* with its head down, and four or five *typhæ* with their heads up. I suppose that the latter would all have perished, having their backs to their entrance holes; indeed, two of mine did so, after which I opened the others to give them exit. As the two species of larvæ are feeding in precisely similar places, it follows, of course, that the hole of *cannæ*, above the larva, is much higher up the plant than that of *typhæ*, which is below; in fact, it is usually quite up in the leafy part of the *Typha*, and very inconspicuous.

The pupæ of *cannæ* were all found in the heart of the fen at some distance from the river, a few in small detached plants of *Typha latifolia*, the greater part in the dense reed-beds, where it was difficult to force one's way. These beds had evidently not been cut for years, and were a perfect miniature jungle, affording magnificent shelter to other creatures besides insects, while they contained here and there considerable quantities of *Typha latifolia* and *angustifolia*, *Cladium mariscus*, &c. All these plants I searched as well as I could, being by no means satisfied with the take of *cannæ* from *T. latifolia*. The smaller species of *Typha* produced several *N. typhæ*, but no *cannæ*; still it is much harder to work than the larger plant, growing in dense masses and being liable to turn brown naturally, thus depriving one of the surest indication of the presence of a larva, so that I may very likely have overlooked them. The *Cladium* was certainly eaten in places, but my examination of it produced nothing but cut fingers, while I was unable to find any signs of larval work in the *Sparganium*.

I may add that the pupæ seem very delicate, so that, though I carefully avoided touching them, and kept the stems moist in a tin box, only seven moths emerged out of a dozen pupæ in all, and of these two were hopelessly crippled. The *typhæ*, on the contrary, came out as though they knew they were common things, until I grew tired of setting them; I was, however, rewarded by a few fine dark varieties.

Paragon House, Norwich:
November, 1885.

HARPALUS CALCEATUS, STURM, RE-ESTABLISHED AS BRITISH, WITH NOTES ON OTHER *HARPALI*.

BY REV. W. W. FOWLER, M.A., F.L.S.

A few years ago, when comparatively a beginner at collecting, while hunting for *Nebria livida* at Bridlington, I turned a large *Harpalus* out of a sandy place on the cliffs. For a long time I have had it in my collection as my sole representative of *H. tenebrosus*; on comparing it, however, a short time ago with specimens of *H. tenebrosus* taken by Mr. J. J. Walker at Whitsand Bay, near Plymouth, and given me by Mr. Champion, I at once saw that it was a distinct species, which opinion was endorsed by Dr. Sharp; Mr. C. O. Waterhouse kindly compared it for me with the European *Harpali* in the British Museum collection, and found that it was *H. calceatus*, Sturm.

The capture is very interesting, as the species is recorded by Dawson as British in the Entomologist's Annual for 1857, p. 66, where he says: "A single female example was captured near Swansea as long ago as 1830 by the Rev. C. Kuper. I am surprised that this species should not be common with us, and that its claim to be recorded should even now rest upon a solitary individual. It is plentiful in France, and occasionally enters lighted apartments in the summer evenings; moreover, it is a large and conspicuous insect, and very unlikely to be overlooked."

Schaum (Insect. Deutsch., I, 585) says, that the species is rather abundant over all Germany and the whole of mid-Europe, but that it is not found in England or Sweden. Fairmaire and Laboulbène (Faune Entomol. Franc., p. 132), from whom Dawson probably got his information, mention it as common everywhere in France, and as often flying into rooms at night, attracted by light. Bedel (Faune des

Coléopt. du bassin de la Seine, p. 173) says, that it lives in sandy and open places, and is often found in numbers in the ground or under stones; he gives a large number of localities in the Seine district, and says that it occurs in Central Asia as well as in Europe.

According to M. Bedel (who classes it with *Ophonus* and not with *Harpalus*) it belongs to the sub-genus *Pseudophonus*, Mots., but differs from our other two species of the group (*griseus* and *ruficornis*) in having only the two external interstices punctured, and in not being pubescent on the upper surface; it appears, however, to come nearer to *H. æneus*, which also has the external interstices punctured and the upper surface smooth. The following is a detailed description of the insect:—

Black or pitchy-black, under-side sometimes pitchy-brown; antennæ and palpi clear red; thorax much broader than long, with sides feebly rounded in front and very slightly contracted, almost straight, towards base, posterior angles right angles; the entire base is coarsely and rugosely punctured, and is depressed on each side, but with no evident basal foveæ; elytra rather long, broader in front than base of thorax, with deep impunctate striæ, interstices somewhat convex, the space between the 8th stria and the margin densely and finely punctured, besides the usual marginal row of large pores; metasternum rather strongly punctured; legs black or pitchy-black, tarsi clear red. Length, 11—13 mm. (5½—6½ lin.).

This species somewhat resembles a large male of *H. tenebrosus*, but may at once be distinguished by its larger size, sharp posterior angles of thorax, and the punctuation of the base of the thorax, and also by the clear red antennæ. *H. tenebrosus* appears to be somewhat variable; I have before me a pair from the same locality, of which the male is much darker and more shining than the female, and larger: the female is duller, with a bluish reflection on the elytra; the thorax also has the sides rather more rounded in front, and the base smoother; the striæ of the elytra are less deeply impressed, and the legs less robust; on the other hand, I have a male (taken by Dr. Power at Brighton, in company with Mr. Dawson) that agrees almost exactly with the female just spoken of. It is probably owing to this variation that a confusion has arisen concerning this species and *H. litigiosus*. As far as I can make out, this latter has never occurred in England, and must be erased from our lists; it comes, however, very close to *H. tenebrosus*, being apparently only distinguished by its larger and more parallel-sided thorax, and by having a row of large punctures at the extremity of the 8th stria of the elytra; the striæ also are very finely punctured.

Ophonus diffinis, Dej., is sunk by M. Bedel (*l. c.* p. 170) as synonymous with *O. rotundicollis*, Fairm. (*obscurus*, Sturm, *nec* Fab.). As there has been considerable confusion in our lists with regard to this species, I wrote to Herr Reitter for a specimen, and he kindly sent me one from his collection; this differs from *rotundicollis* in having the thorax more strongly punctured and slightly less rounded at the sides, and with the posterior angles in a very small degree more strongly rounded; the differences, however, are so very slight (especially as *H. rotundicollis* is somewhat variable as regards punctuation of thorax), that there seems hardly any doubt but that the species are synonymous, or, at the most, that one is a variety or race of the other. Rye (Ent. Ann., 1872, p. 134) says, that "*H. diffinis* stands in the same relation to *H. rotundicollis*, Fairm., as *griseus* to *ruficornis*;" but in this he is wrong, as the difference in the posterior angles of thorax in the first two species is hardly perceptible, whereas *H. griseus* has the posterior angles very blunt, almost rounded, while in *H. ruficornis* they are very acute and projecting.

I have lately been carefully working through the *Ophonus* group, and I may add, in conclusion, that although I believe *H. cordatus*, Duft., and *H. rupicola*, Sturm, to be distinct species, yet, after a careful examination of a large number of species, I have come to the conclusion that the connecting links between *H. puncticollis*, Payk., *H. rufibarbis*, F. (*cribellum*, Steph.), and *H. parallelus*, Dej., are so strong, that it is extremely doubtful whether they do not all belong to one species; of course, the extreme forms are very easy to separate, but some of the intermediate forms cannot be assigned to either one or the other. *H. cordatus* is distinct by its strongly convex and cordate thorax, which never repeats itself in the other forms (although specimens occur that somewhat resemble it in shape, yet they are always distinct), and *H. rupicola* is easily distinguished by the much stronger and coarser punctuation of the interstices of the elytra. M. Bedel (*l. c.* p. 70) separates *puncticollis* and *rufibarbis* on the ground that the latter has no trace of a basal border, whereas, the base of the former is always finely bordered, but M. des Gozis (Revue d'Entomologie, iv, p. 116) proves that this character is not constant, and of no service in settling the difficulty; he says that in September, 1883, he took *Ophonus puncticollis* by hundreds, and that quite half presented no trace of a basal border. As far as my experience goes, specimens from the same locality or spot do not vary much. I once took upwards of two hundred specimens of *rufibarbis* at Repton from a spot a foot square, and they were very constant in the shape of the thorax.

Lincoln: *November 12th*, 1885.

A SYNOPSIS OF THE BRITISH SPECIES OF *CEPHINA*.

BY P. CAMERON.

The species of *Cephus* appear, with the exception of the common *C. pygmæus* and *phthisicus*, to be rare in this country. They are chiefly found in the South of England, there being only two species found in the North, namely, *C. pygmæus* and *C. phthisicus*; while only the latter is found in Scotland. I believe, however, that some of the European species may yet be discovered in Britain; and I hope that North and West during next season some attention may be given to the collecting of these insects.

C. floralis, Kl., has been recorded as British by Stephens, but I have not myself seen any specimens of this species, which seems to be very little known on the continent.

Sub-Genus JANUS, Steph.

Antennæ slender, filiform, not thickened towards the apex, the 3rd joint longer than the 4th; eyes oval, not reaching to the base of the mandibles; abdomen not more than one-half longer than the thorax; the 4th joint of maxillary palpus double the length of 6th; the basal joint not half the length of the 2nd.

1. **Cephus cynosbati**, Lin. (pl. vii, vol. ii, fig. 1),
=*femoratus*, Curt., = *connectus*, Ste., =*faunus*, Newm.

Black, four anterior tibiæ and tarsi testaceous, a line on the pronotum, the base of femora and basal third of posterior tibiæ, white.

The ♂ has the apical third of the anterior femora, and the whole of the four posterior, reddish, the tibiæ pale testaceous, and the base of hinder tibiæ white.

Not uncommon in the South of England.

Sub-Genus PHYLLŒCUS, Newm.

Antennæ 25–28-jointed, thick, sub-filiform, thin at base, becoming gradually thickened towards the apex; the 3rd joint a little longer than the 4th; the two basal joints of maxillary palpi nearly equal, the 4th but very little longer than the 6th; prothorax not transverse; hind tibiæ with one spine.

1 (2) Pronotum yellow, the sides of abdomen with 6 or 7 broad yellow bands, the 4th segment banded with yellow. ♂ with two yellow marks on vertex, coxæ and femora yellow .... *linearis*.

2 (1) Pronotum entirely black, abdomen with three small yellow marks, the 4th segment not yellow; ♂ coxæ and femora black, the vertex without yellow... Satyrus.

2. CEPHUS LINEARIS, Schr. (vol. ii, pl. vii, fig. 2), = *quinquefasciatus*, Ste., *faunus*, Thoms., *nec* Newm.

3. CEPHUS SATYRUS, Pz.

This is a smaller species than *linearis*, and is easily known from it by the pronotum being entirely black, by the vertex being without any marks, by the marks on the abdomen being very much smaller, the 4th segment also being entirely black; the 2nd cubital cellule is shorter compared to the 3rd. The ♂ is readily separated from ♂ *linearis* by the femora and coxæ being entirely black.

As British I only know the species from a specimen in Shuckard's collection. It has no note of locality. Further evidence of the species being really British is very desirable.

Sub-Genus CEPHUS.

Antennæ 18—21-jointed; apex clavate or sub-clavate; the basal two joints of maxillary palpi sub-equal; the 6th scarcely double the length of 4th; eyes reaching to near the base of the mandibles.

FEMALES.

1 (2) Hind tibiæ with only one spine; antennæ longish, the 3rd joint almost shorter than the 4th; posterior legs fuscous; ovipositor short; abdominal segments 2—6 bordered with yellow.......................... *arundinis*.

2 (1) Hind tibiæ with two spines.

3 (4) Abdomen entirely black; antennæ 18—20-jointed, clavate; 1st recurrent nervure interstitial .. ..*phthisicus*.

4 (3) Abdomen marked or banded with yellow.

5 (6) A longish spot on side of each of the abdominal segments, the whole forming an almost continuous band ....*tabidus*.

6 (5) Abdomen with two or more yellow belts.

7 (8) Apex of abdomen black, a yellow band only on the 4th and 6th segments; head sub-cubital; vertex emarginated; length, 7—8 lines ... *troglodyta*.

8 (7) Apex of abdomen yellow; head transverse; vertex scarcely emarginated; length, 2½—4 lines.

9 (10) Abdomen with two complete yellow bands; antennæ brownish at apex; breast and vertex pilose; hind tibiæ and tarsi testaceous ....*pusillus*,

10 (9) Abdomen with more than two complete bands; hind tibiæ and tarsi fuscous... *pygmæus*.

MALES.

1 (2) Breast, coxæ and femora more or less yellow ....*pygmæus*.

2 (1) Breast black.

3 (4) Abdomen entirely black .... *phthisicus*, *var*.

4 (9) Abdomen banded with yellow.

5 (6) Abdomen with three complete bands, on the 4th, 5th and 6th segments; antennæ 18—20-jointed ... .*phthisicus*.

6 (5) With only two complete yellow bands.

7 (8) Length, 7—8 lines; the 4th and 6th abdominal segments yellow; head cubical; vertex emarginated ....*troglodyta*.

8 (7) Length, 2½—3 lines; the 3rd and 5th segments banded with yellow; head transverse; vertex scarcely emarginate .... *pusillus*.

9 (3) Abdomen with a row of triangular yellow spots along the sides; none of the segments banded .... *tabidus*.

4. CEPHUS ARUNDINIS, Giraud (vol. ii, pl. vii, fig. 3), = *quadricinctus*, Thoms., = *filiformis*, André.

The one spine on the hind tibiæ (which are black), the greater number of yellow bands on the abdomen, the cubical head emarginate behind, and the closely punctured head and thorax, easily separate this species from the others in this section. The greater extent of the yellow coloration on the face of the ♂, and the yellow front legs make it easy of identification.

5. CEPHUS PHTHISICUS, Fab., = *pallipes*, Htg., = *cultrarius*, Htg., = *immaculatus*, Ste.

A distinct and common species.

6. CEPHUS TABIDUS, Fab., = *longicollis*, Fourc., = *mandibularis*, Lep.

The row of yellow spots on the abdomen of this species makes it easy of recognition.

7. CEPHUS TROGLODYTA.

This is a larger species than *pygmæus*; the antennæ are shorter and less thickened towards the apex; the yellow bands on the abdomen are narrower, and there is no yellow on the last segment; the stigma and nervures are testaceous, not black, as in the common species; the ♂ is readily known by the black breast; the legs do not differ in coloration from those of the ♀.

8. CEPHUS PYGMÆUS, Lin.

The common and destructive species.

9. CEPHUS PUSILLUS, Ste.

I believe this is a distinct species. It differs from *pygmæus* in being smaller, in the antennæ being longer and brownish towards the apex; there are only two yellow bands on the abdomen in the ♀, and the posterior tibiæ and tarsi are yellowish-testaceous; the costa and stigma are lighter in colour, the transverse radial nervure is received nearer the apex of the 2nd cubital cellule, which is shorter compared to the 3rd. The ♂ is readily known from that of *pygmæus* by the breast and pleuræ being quite black. It resembles the ♂ of *pallipes*, but its abdomen is shorter and broader, and has not so many, nor so broad, yellow bands; and the 2nd cellule is distinctly longer compared to the 3rd.

20, Beech Road, Sale, Cheshire:
November, 1885.

NOTE ON *CERATINOSTOMA MARITIMUM.*

BY R. H. MEADE.

Since my description of this Dipteron appeared in the last number (December, 1885) of this Magazine, my friend, Herr Röder, of Hoym,* has informed me that he has taken this insect on the sea-shore at the island Nordeney, and believes it to be identical with the *Scatophaga oceana*, of Macquart, who described and figured it in 1838 in the 7th vol. of the Annales de la Société entomologique de France. Macquart's description is very short, so I will transcribe it:—

> "SCATOPHAGA OCEANA, Nob.
> (Pl. xi, fig. 2).
>
> *Obscure virescens, palpis flavidis; antennis nigris, stylo hirsuto; pedibus nigris.* *Long.*, 3 *lin.*, ½.
>
> Face blanche; thorax à quatre bandes brunes; les deux latérales contiguës, une tache grise sur la suture; ailes hyalines, nervures longitudinales et transversales bordées de brunâtre pâle. (La plage de Dunkerque)."

He adds that this fly is less hairy, has the forehead less prominent, and the third joint of the antennæ, together with the style, shorter than in the ordinary species of *Scatophaga*, in all which respects it will agree with *C. maritimum*, but he says nothing about the shape of the male abdomen, and seems to have described and figured a female specimen only. In the Wiener entomol. Zeitung, vol. iii, p. 290, Herr Röder published some remarks upon the synonymy of *Scatophaga oceana*, Macq., in which he says that he considers it to be identical with *Scatomyza borealis*, Zett., and *Scatophaga ostiorum*, Hal., which last was very briefly described in Curtis' "British Entomology."

Assuming that these opinions are correct, my name of *maritimum* must be superseded by that of *oceanum*, but the remarks which I made in my paper upon the necessity of forming a new genus for the reception of this species will remain in force, and the synonymy will stand as follows:—

CERATINOSTOMA, Meade.
oceana, Macq. (*Scatophaga*).
ostiorum, Hal.
borealis, Zett. (*Scatomyza*).
maritimum, Meade.

Bradford, Yorks.:
December, 1885.

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* Who is noted for having one of the largest collections of *Diptera* in Europe.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA*.

BY G. H. VERRALL, F.E.S.

1. *Sciara carbonaria*, Mg.
2. *Boletina trivittata*, Mg.
3. *Rymosia truncata*, Winn.
4. *Scatopse tristis*, Ztt.
5. *incompleta, n. sp.*
6. *transversalis*, Lw.
7. *inermis*, Ruthe.
8. *recurva*, Lw.
9. *subnitens, n. sp.*
10. *minutissima, n. sp.*
11. *Psychoda albipennis*, Ztt.
12. *humeralis*, Mg.
13. *Dicranomyia ornata*, Mg.
14. *Rhipidia ctenophora*, Lw.
15. *Limnobia macrostigma*, Schum.
16. *annulus*, Mg.
17. *nigropunctata*, Schum.
18. *Thaumastoptera calceata*, Mik.
19. *Antocha opalizans*, O.-Sack.
20. *Empeda flava*, Schum.
21. *nubila*, Schum.
22. *Molophilus appendiculatus*, Stæg.
23. *propinquus*, Egg.
24. *bifilatus, n. sp.*
25. *Rhypholophus varius*, Mg.
26. *hæmorrhoidalis*, Ztt.
27. *similis*, Stæg.
28. *Dactylolabis Frauenfeldi*, Egg.
29. *Limnophila punctum*, Mg.
30. *fuscipennis*, Mg.
31. *lucorum*, Mg.
32. *sepium, n. sp.*
33. *Idioptera pulchella*, Mg.
34. *Pachyrrhina guestfalica*, Westh.
35. *maculosa*, Mg.
36. *Tipula scripta*, Mg.
37. *confusa*, V. d. Wulp.
38. *marmorata*, Mg.
39. *obsoleta*, Mg.
40. *vittata*, Mg.
41. *Pachygaster tarsalis*, Ztt.
42. *Odontomyia angulata*, Pz.
43. *Chrysops quadratus*, Mg.
44. *Tabanus græcus*, F.
45. *Scenopinus glabrifrons*, Mg.
46. *Bombylius canescens*, Mik.
47. *Rhamphomyia spissirostris*, Fln.
48. *dentipes*, Ztt.
49. *fumipennis*, Ztt.
50. *plumipes*, Fln.
51. *Rhamphomyia simplex*, Ztt.
52. *Empis caudatula*, Lw.
53. *æstiva*, Lw.
54. *volucris*, Mg.
55. *Oreogeton flavipes*, Mg.
56. *Clinocera plectrum*, Mik.
57. *Lepidomyia albiseta*, Ztt.
58. *Tachydromia* (*Platypalpus*) *albiseta*, Pz.
59. *stigmatella*, Ztt.
60. *Campsicnemus pectinulatus*, Lw.
61. *Micromorphus albipes*, Ztt.
62. *Syrphus decorus*, Mg.
63. *lapponicus*, Ztt.
64. *Melanostoma dubia*, Ztt.
65. *Chilosia cynocephala*, Lw.
66. *Orthoneura brevicornis*, Lw.
67. *Chrysogaster virescens*, Lw.
68. *Melanophora atra*, Mcq.
69. *Calliphora azurea*, Fln.
70. *Pyrellia cyanicolor*, Ztt.
71. *Hæmatobia stimulans*, Mg.
72. *irritans*, L.
73. *Spilogaster trigonalis*, Mg.
74. *pertusa*, Mg.
75. *Homalomyia Roserii*, Rnd.
76. *Anthomyia sylvestris*, Fln.
77. *striolata*, Fln.
78. *discreta*, Mg.
79. *vetula*, Ztt.
80. *Pegomyia diaphana*, W.
81. *Chirosia albitarsis*, Ztt.
82. *Tetanocera lævifrons*, Lw.
83. *Elgiva rufa*, Pz.
84. *Psila villosula*, Mg.
85. *Psilosoma Lefebvrii*, Ztt.
86. *Themira spinosa, n. sp.*
87. *Ptilonota centralis*, F.
88. *Pteropæctria palustris*, Mg.
89. *Spilographa hamifera*, Lw.
90. *Trypeta jaceæ*, Dsv.
91. *Urophora quadrifasciata*, Mg.
92. *Tephritis vespertina*, Lw.
93. *conura*, Lw.
94. *conjuncta*, Lw.
95. *Urellia cometa*, Lw.
96. *Meromyza læta*, Mg.
97. *Notiphila nigricornis*, Stnh.
98. *annulipes*, Stnh.
99. *Ephydra breviventris*, Lw.
100. *Limosina ferruginata*, Stnh.

It is very difficult to say what is meant by a "new British species" of *Diptera* in the present confused state of our lists, as many species which were well known to Curtis and Stephens were omitted by Walker, whilst many described by Walker were incorrectly named; these, when recorded as British, are not strictly new species, but yet they would probably be omitted by any one endeavouring to ascertain the geographical distribution of species.

1. *Sciara carbonaria*, Mg.: this is undoubtedly the *S. morio* of Walker, and possibly Meigen, but not recognised as such by Winnertz in his Monograph of the *Sciarinæ*. It is abundant on lime trees in my garden about the middle of May.

2. *Boletina trivittata*, Mg.: taken at Lynton, Ivybridge, Loch Maree and Tongue, in June.

3. *Rymosia truncata*, Winn.: on my study window, January 14th, 1884.

4. *Scatopse tristis*, Ztt.: I took a specimen at Lyndhurst, on June 18th, 1869, which both Loew and I made out to be this species.

5. *S. incompleta*, *n. sp.*: two specimens of this occurred at Abbey Wood on August 15th, 1869; Loew returned one with "novam credo" attached to it.

It is a rather small species; thorax dullish black; abdomen shining black; wings with a very distinct venation, the second vein extending far beyond the middle of the costa, hence second costal space nearly one and a half times as long as first, this second vein curves a little into costa at its end; the forked vein starts at the transverse veinlet, and the forks are about the same length as the peduncle, but both forks vanish entirely before they reach the edge of the wing; the last vein is considerably twisted; the wings are altogether very much darkened. I know no species to compare the venation with at all; *S. pulicaria*, Lw., has clear wings, short peduncle of forked vein, and complete forks.

6. *S. transversalis*, Lw.: this well-marked though rare species occurred freely on a tree near Thetford on June 17th, 1880.

7. *S. inermis*, Ruthe: I find this a very common species and very widely spread, having taken specimens at Exeter, Cambridge, Windermere, and Gairloch. I expect most of Walker's *S. soluta* belong to this.

8. *S. recurva*, Lw.: this species is very common, especially in gardens.

9. *S. subnitens*, *n. sp.*: on May 11th, 1868, I took three specimens of this on a tree-trunk at Denmark Hill, and thought they seemed distinct from *S. recurva*, but had considerable doubt, desiring more

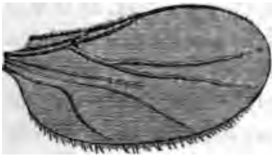
specimens to make sure. Year after year I searched in vain, though I was in the same garden almost every day, but when strolling in the garden early in the evening of May 24th, 1873, I noticed a peculiar shimmer in the air under a large mulberry tree; upon examination it proved to be caused by hundreds of this species. I have never seen it since.

It is very closely allied to *S. recurva*, but is longer and thinner, the thorax somewhat shining, very distinct from the dull thorax of *S. recurva*; the wings are broader, with the forks of the forked vein widely diverging at the tip.

10. *S. minutissima, n. sp.*

Nigricans, opaca; abdomen depressum; pedes fusci, geniculis saltem tarsisque sordide albidis, tibiis posterioribus sub-clavatis; halteres et palpi sordide albidi; alæ latæ. Long., 1 mill.

This species occurred in profusion at Pagham Harbour (then being reclaimed from the sea) on June 22nd, 1876; it was so small that it readily crept through the meshes of my fine muslin net, but, like all the species of the genus, was most reluctant to fly.



Last winter I made some experiments in Micro-Photography, and was most successful with the wings of this species; I have, therefore, given a woodcut of the wing, which was taken from a photograph. It is curious that all three of these new species I have now introduced have the forked vein peculiar, in that the forks widely diverge or fade away. This species is not closely allied to any other; it is dullish black, rather narrow, the thorax brownish at the sides, and clothed with pale short dense pubescence, which is also on the scutellum; the antennæ are rather short and thick, becoming slightly thicker from base to tip, and with a whitish sheen over them; abdomen depressed, about two and a half times longer than broad, widest a little after middle; legs obscure brownish, knees, tarsi, halteres and short palpi dirty dull whitish, in paler specimens the legs are dull pale brownish; all the tibiæ, especially the posterior, widened towards the tip.

11. *Psychoda albipennis*, Ztt.: not at all uncommon on windows in my house.

12. *P. humeralis*, Mg.: also not uncommon on windows here, and I possess a considerable number of either this or a possibly new species, larger and more ochreous, bred from decaying snails by Mr. J. H. A. Jenner of Lewes. Stephens included *P. humeralis* in his Systematic Catalogue of British Insects.

13. *Dicranomyia ornata*, Mg.: many specimens of this handsome species were correctly named and distributed by the late Mr. J. C. Dale, but yet I do not find it recorded as British. I caught one myself this year at Bonchurch, I. W., in June.

14. *Rhipidia ctenophora*, Lw.: I caught one female of this at Lyndhurst on the 18th of June last. Only one specimen has been hitherto recorded, which was bred at Frankfort-on-the Maine.

15. *Limnobia macrostigma*, Schum.: common at Lyndhurst last June.

16. *L. annulus*, Mg.: one female at Lyndhurst on June 22nd, 1872. This is the grandest species of all the *Limnobiadæ*, except perhaps *Pedicia rivosa.*

17. *L. nigropunctata*, Schum.: one female at Darenth on May 12th, 1867. I also have one caught this spring near Lewes by Mr. J. H. A. Jenner.

18. *Thaumastoptera calceata*, Mik: this exceedingly rare species occurred abundantly in a hedgerow near Lymington last June; three or four might be caught in one stroke of the net. Mik described it in 1866 (Verh. zool.-bot. Wien, xvi, 302) from two males and five females caught by him at Gorz (Goritz) in Austria, and since then I have only noticed the record of one specimen caught by Westhoff in Westphalia in 1882.

19. *Antocha opalizans*, O.-Sack.: the occurrence of this species in Great Britain is possibly of even more interest than the last, as it was originally described from North America; it has, however, since been observed in Austria and Switzerland. I caught two specimens in June, 1884, at Tongue, it therefore very likely lurks under one of Zetterstedt's unrecognised Scandinavian species; it is also undoubtedly the species intended in Stephens' Catalogue, vol. ii, page 243; Genus 20: (1144)—7893, 1; *thoracicus*, *mihi*, as many specimens occur in the British Museum under that name; this is another proof of the accuracy of Stephens' eye as far as a "genus" was concerned. The group which Osten-Sacken has named *Limnobina anomala* seem to me to be remnants from a very ancient time, nearly all of them being exceedingly widely spread, but left only in isolated colonies; they are also interesting in being the obvious stepping stones from the *Limnobinæ* to the *Eriopterinæ*, the closest links of which at present are *Thaumastoptera* for the former and *Goniomyia* or *Empeda* for the latter, *Thaumastoptera* being apparently a *Goniomyia* with the short fork of the radial vein ending in the sub-costal vein, instead of in the costa.

20. *Empeda flava*, Schum.: this is not uncommon; I have taken it near here, and also last June at Bonchurch, Lymington and Lyndhurst. This is a species which may or may not be considered new to Britain, as undoubtedly when Walker (Ins. Brit. Dipt., iii, 275) described *Acyphona imbuta*, Mg., he had a specimen of this *E. flava* before him; however, as both species are British, one must be new to Britain.

(*To be continued*).

Distribution of Lepidoptera.—An interesting instance of fluctuation in the distribution of insects occurred to me in July, on the occasion of spending a few days at my old locality, Haslemere.

When I left there seventeen years ago I had so thoroughly worked the country for many miles round that it was extremely difficult to find any species of *Lepidoptera* new to the district. But on this year's visit, on my first walk a couple of miles out of the town I took one species, *Homæosoma binævella,* not previously known to occur there; and on the next day at Woolmer Forest another such novelty occurred, *Heterogenea asellus.* Considering the thorough manner in which both localities were formerly worked, I think it quite improbable that these two species inhabited the district at that time. Another day I beat out a specimen of *Botys lancealis,* from a hedge which I used constantly to work. This species had previously only occurred once or twice at some miles distance.—CHAS. G. BARRETT, 68, Camberwell Grove, S.E.: *September* 18*th*, 1885.

Lepidoptera near Haslemere.—Although insects do not seem yet to have recovered from the influence of the late unfavourable seasons, and are by no means to be found in their former numbers, it was pleasant at Haslemere this summer to see examples of many interesting species, familiar in that neighbourhood in old times, but hardly ever seen by me since. My stay was limited to one week, but I found the beautiful *Cidaria picata,* as of old, on the hill sides, hiding in the tall hedges, and requiring an immense amount of labour with the beating stick to bring them out. With them I found *Melanippe unangulata,* a few *Olindia ulmana* of both sexes, and rarely *Dichelia Grotiana.* One of my most gratifying captures was *Tortrix cinnamomeana,* which occurred in two or three localities among oak, beech, and larch, and of which I secured some very nice specimens. While watching for this species in the late afternoon, one of the children brought a specimen of *Cryptoblabes bistriga,* not quite in as good condition as could be desired. On the heath, *Anarta myrtilli* was flying much more commonly than I used to see it, and if possible, with more than its normal energy. Little else was to be found on these usually productive heaths except an occasional *Agrotis porphyrea* or *Pleurota bicostella,* and the abundant *Eupæcilia angustana;* but one *Gnophos obscurata* occurred of a very pretty colour, dark grey flecked with white scales. Further search for this species produced nothing but a pair of very handsome eggs of the goatsucker, *Caprimulgus europæus.*

My one day at Woolmer forest was delightful, and insects (*Tabanidæ* excepted) most remarkably scarce. It was glorious, after so many years, again to see *Limenitis Sibylla* soaring and gliding among the oak trees. The lovely creature was not at all common, I suppose I saw altogether but a dozen, yet every one was like a gleam of silver, and it seemed shameful to kill anything so lovely. Such sentiment was, however, tolerably cheap, for they had no intention of being killed, and only three allowed themselves to be deluded within reach. One (the last) fell fairly and evidently a victim to *curiosity,* for as I came to the glade which he frequented, he came down from the oak tree on which he was about to settle down for the night, and sailed close round me, evidently reconnoitring, and doubtless was much surprised and disgusted at the interruption he received. I suppose there was plenty of honey dew on the oak leaves, for bramble flowers seemed to have lost their attraction, neither *L. Sibylla* nor *Argynnis Paphia* (which was scarce) seemed to take any notice of them. The only common butterfly was *Lycæna Ægon*, which was plentiful in the open boggy places, and in great beauty. One principal object of my journey that day was *Acidalia straminata*, but not a specimen could be disturbed from among the heather, and I at last secured two specimens only by the very unexpected method of jarring small fir trees with a heavy stick. They seemed to be resting on the *tops* of these trees. *Macaria liturata* appeared to be fairly common among the firs, but mostly worn; *Cleora lichenaria* sat on their trunks and limbs, and females of *Fidonia piniaria* on the tall Carices underneath them. Badly worn specimens of *Hypena crassalis* and *Erastria fuscula* were still to be found sitting on the trunks of the same trees, or among the whortleberry below; and two freshly-emerged *Ellopia fasciaria* seemed well satisfied to rest on the leaves of the bramble. Single specimens of *Euthemonia russula* and *Aspilates strigillaria* came out of the heath; of *Lithosia mesomella*, *Aventia flexula*, *Tortrix roborana*, *Penthina capræana*, and *Heterogenea asellus* (already noticed), from the oaks; and *Nephopteryx roborella* from birch; while *Pempelia palumbella* was of course among heath in open places. Formerly I should have thought this a poor day's result in that locality; now I was delighted with it.—Id.: *October*, 1885.

Abnormal neuration in the wings of Hymenoptera.—In our last number, pp. 148 and 149, Mr. Vincent R. Perkins describes some peculiarities in the neuration of the anterior wings of some of his captures. After reading his observations I referred to my own collection to see what I could find in the way of abnormal neuration among my own specimens, and, having found several examples, I thought I would add a few remarks supplementary to what Mr. Perkins has already recorded.

Sphecodes pilifrons, Th. One ♀ with only two sub-marginal cells in the left anterior wing, *the external nerve of 2nd sub-marginal being absent.*

Halictus rubicundus, Ch., ♂. Both anterior wings with only two sub-marginal cells, *the external nerve of 2nd sub-marginal absent.*

Halictus villosulus, K. A male and female each with the *external nerve of 2nd sub-marginal* slightly abbreviated at the apex in either wing; another ♀ has the *external nervures of the 2nd and 3rd sub-marginal cells* so faintly traced as to be scarcely observable, as also are the nervures of the 2nd apical cell.

Halictus breviceps, Saund., ♂. Right anterior wing with only two sub-marginal cells, *external nerve of 2nd sub-marginal absent.*

Andrena Clarkella, K., ♂. Left wing with only two sub-marginal cells, *external nervure of 2nd sub-marginal indicated only at the base.* Another ♂ has two sub-marginal cells only in either wing, *the external nervure of 2nd sub-marginal completely absent in both*; a ♀ has this nerve abbreviated in the left wing.

Nomada Roberjeotiana, Panz., ♂. Right wing with only two sub-marginal cells, *external nervure of 2nd sub-marginal absent.*

Nomada fucata, Panz., ♂. *3rd sub-marginal cell incomplete in left wing*, its external nerve being abbreviated.

Nomada ruficornis, L., ♀. I have a small ♀ with two sub-marginal cells only in either wing, the *external nervure of 1st sub-marginal cell* being only just indicated at its base.

Nomada ferruginata, K., ♂. Both wings with the *external nervure of the 2nd sub-marginal cell* abbreviated at the *apex*; ♀ with the *external nerve of the 1st sub-marginal* abbreviated on the left side.

It would appear from the above instances that the external nervure of the 2nd sub-marginal cell is that most liable to variation, there being 11 out of 14 specimens with this nervure affected, the external nervure of the 1st sub-marginal is affected in two cases, and that of the 3rd in one only. I have not found any peculiarity of neuration among such of the *Anthophila* as have only two sub-marginal cells; variation in the forms of the cells is very frequently observable, and makes one doubt the value that has usually been put upon neuration as a basis of classification.—EDWARD SAUNDERS, St. Ann's, Mason's Hill, Bromley, Kent: *December 9th*, 1885.

Coleoptera near Lewes.—The following notes and list of captures of *Coleoptera* during 1885 may perhaps be of interest. I began the season by searching moss, tuft pulling, &c., but insects were very scarce compared with former years; some of the commonest were entirely absent, and nothing of particular note was captured. About the middle of February I tried flood rubbish, insects were fairly plentiful, but not nearly so common as in the previous year. Abbots Wood, one of our great strongholds, did not produce the usual number of good things, although I worked it at different times of the year. I paid two visits to Laughton Wood, and the quality of insects taken there I am glad to say was a little better. I worked principally in the vicinity of the town; now and then I had a fair day, but several times I came home without an insect in my bottle, which, I think, must be due in a great measure to the past dry seasons.

Appended is a list of my principal captures:—

Pelobius tardus, Lewes, common; *Brychius elevatus*, Lewes, fairly common; *Philhydrus melanocephalus*, Lewes, very common, but local; *Hydrochus angustatus*, Abbots Wood, common; *Ochthebius æratus*, Lewes, common; *Hydræna nigrita*, Abbots Wood, common; *Stenus pallitarsis*, flood rubbish, Barcombe, scarce; *Silpha thoracica*, Laughton Wood, scarce; *Telmatophilus typhæ*, Lewes, scarce; *Endomychus coccineus*, Lewes, scarce; *Adalia obliterata*, Laughton Wood, scarce; *Chilocorus similis*, Wivelsfield, common; *Elmis Volkmari*, Lewes, scarce; *Onthophagus vacca*, Abbots Wood, common; *Aphodius erraticus*, Abbots Wood, very common; *Homaloplia ruricola*, Lewes, scarce; *Drilus flavescens*, Lewes, ♂, common; *Apion punctigerum*, Abbots Wood, scarce; *Bruchus cisti*, Lewes, common. I have also taken a specimen or two of each of the following, viz.: *Licinus depressus*, *Sphodrus leucophthalmus*, *Hydroporus memnonius*, *Proteinus atomarius*, *Liodes orbicularis*, *Anisotoma dubia*, *Atomaria fimetarii*, *Cyrtotriplax bipustulatus*, *Athous niger*, *Corymbites bipustulatus*, *Scaphidema æneum*, *Melandrya caraboides*, *Pyrochroa coccinea*, *Orchestes pratensis*, *Gymnetron rostellum*, *Apion atomarium*, *Apion ebeninum*, *Rhynchites betuleti*, and *Orsodacna cerasi*. The principal part of these last were taken at Laughton Wood, and Abbots Wood.—C. H. MORRIS, School Hill, Lewes: *December*, 1885.

Hydnobius Perrisii, &c., near Hartlepool.—I have been fortunate in taking a good series of *Hydnobius Perrisii* this autumn at Hartlepool, and also three specimens of *Hydnobius punctatissimus*, as well as the following:—*Anisotoma Triepkii* (5), *A. rugosa* (3), *A. dubia* (8), *A. calcarata* (1), *A. litura* (1), and *Colon denticulatum* (1); Mr. W. G. Blatch, of Birmingham, has kindly named the above for me. Amongst a miscellaneous lot of my first year's captures, which I sent to my friend

Mr. Sang to get named, when he was at Burton-on-Trent, a specimen of the rare *Bryoporus Hardyi* was discovered, of which only two specimens have been previously recorded; this specimen is now in Dr. Mason's collection; I have looked for it again, but without success.—J. Gardner, 8, Friar Terrace, Hartlepool: *November 20th*, 1885.

Observation on the habits of Litodactylus (Phytobius) leucogaster, Marsh.—At the November meeting of the Entomological Society, Mr. C. O. Waterhouse exhibited some living specimens of *Eubrychius (Phytobius) velatus*, Beck., in order to shew that they swam with their hind-legs after the fashion of a Dytiscide; these specimens he kindly gave to me after the meeting, and I kept them alive for some time; they were able to swim not only on the surface but could dive beneath it, and although their natural buoyancy appears to force them upwards yet they are able to dive quite far enough to seize the aquatic plants, and to which they cling, in case they do not project above the surface: if they do, they prefer to seize them near the surface and crawl down them. A little while ago I asked Mr. J. J. Walker if he could procure me living specimens of any of the other members of the genus and its allies, and he kindly captured for me two specimens of *Litodactylus leucogaster*; these swim in exactly the same way as *E. velatus*, except that their buoyancy seems to be somewhat greater, and their power of diving below the surface somewhat less in consequence. These sub-aquatic *Curculionidæ* seem to be able to sustain life under water as well as, if not better than, the *Dytiscidæ*. As I was going from place to place, when Mr. Waterhouse gave me his specimens, they were often corked up in a small tube of water for many hours together, but did not seem to be any the worse.—W. W. Fowler, Lincoln: *Dec. 9th*, 1885.

Cryptocephalus frontalis, Marsham.—I have taken this beetle rather freely at Rusper, Horsham, during the month of July. This year it continued till the 22nd, a late date, I believe, for this genus. The Rev. H. S. Gorham, who accompanied me, captured upwards of twenty.—H. J. Gore, 7, Well Road, Hampstead: *December*, 1885.

Cryptocephalus frontalis, Marsham.—This species has been captured rather freely this year by Mr. Gore and myself in a place at Rusper where I swept up one specimen in June, 1873. Thanks to Mr. Gore's hospitality, I was able to re-visit the spot this year on the 15th July. Mr. Gore had previously met with a few this year. The place is a very unlikely looking one for *Cryptocephali*, being in fact by the side of a corn-field; but in the ditch some low sallow was growing, and it is my opinion that it was upon that that the insect was sitting.—H. S. Gorham, Shirley Warren, Southampton: *December 15th*, 1885.

Notes on Arachnida.—I have this autumn taken *Lycosa riparia*, L. Koch, ♀, at Lower Camden, Chislehurst, the specimen having been kindly identified for me by the Rev. O. P. Cambridge. This spider is perhaps not uncommon, but it has as yet only been recorded for a very few British localities, and is new to the London district. With the *Lycosa* I took *Micaria pulicaria*, Sund., ♂, *Tegenaria atrica*, Koch, ♀, *Linyphia thoracica*, Wid., *L. tenebricola*, Wid., and several others. I have also taken *Linyphia bicolor*, Bl., and *Neriene livida*, Bl., at Bedford Park, Chiswick.—*T. D. A. Cockerell*, Bedford Park, W.: *Nov. 27th*, 1885.

South London Entomological and Natural History Society.—The Annual Exhibition was held at 1, Denman Street, London Bridge, on December 3rd, and was very successful. The following is a summary of the principal exhibits:—**Mr. McLachlan**: drawers of European *Trichoptera*, Ant-Lions, *Ascalaphidæ* and *Nemopteridæ*, and the shell-like cases of *Psychidæ* from Zanzibar, noticed in Ent. Mo. Mag., xxi, pp. 1, 2. Mr. Jenner Weir: exotic *Rhopalocera*, including the genera *Morpho* and *Caligo*, and a series of *Danais Archippus* (*Anosia Plexippus*) from widely distant parts of the globe. Mr. South (the President): series of the British species of *Melitæa*, shewing local variation, species of *Argynnis*, *Lycæna*, and *Cænonympha* from Britain and Switzerland, many varieties of British *Lepidoptera*, British Tortrices, *Bryophila par* and *impar*, &c. Mr. Adkin: British species of *Melitæa*, *Argynnis*, and *Vanessa*, with numerous varieties, northern forms of *Hepialus humuli*, *Eugonia quercinaria*, also *Nola centonalis*, *Macrogaster castaneæ*, &c. Mr. Elisha: fine series of British *Micro-Lepidoptera*, and series of bred *Geometra smaragdaria*, and *Coleophora vibicigerella* from the Essex marshes. Mr. Farn: hermaphrodite *Pœcilocampa populi*, with series of *Pteroxia caudella*, *Spilonota lariciana*, &c. Mr. Wellman: *Lepidoptera* taken or bred during the year, including *Sesia chrysidiformis*, *ichneumoniformis*, and *culiciformis*, *Chœrocampa Celerio*, *Hesperia Paniscus*, *Lobophora polycommata*, *Lemiodes pulveralis*, a third brood of *Acidalia rubricata*, and second broods of *A. trigeminata*, *holosericeata*, &c. Mr. Tugwell: three drawers of varieties of British *Zygænidæ*, the unique (as British) *Syntomis Phegæa*, IVI varieties of *Setina irrorella*, *Dianthœciæ* shewing local variation, *Nola centonalis*, &c. Mr. Tutt: a series of *Agrotis tritici*, *nigricans*, *obelisca*, and *cursoria*, shewing endless variation. Mr. Bird: *Lepidoptera* from the Fens, including *Macrogaster castaneæ*, *Acronycta strigosa*, *Senta ulvæ*, *Nascia cilialis*, *Coccyx Ochsenheimeriana*, &c. Mr. J. T. Williams: bred series of *Boletobia fuliginaria*, and *Aoidalia rubricata*, &c. Mr. Lovett: varieties of British *Lepidoptera*. Mr. Bower: *Eupœcilia curvistrigana* and *subroseana*, *Peronea tristana*, *hastiana*, *Coleophora conyzæ*, &c. Mr. Dobson: *Ennomos erosaria*, a dark variety of *Platypteryx lacertula*, &c. Mr. Watkins: exotic *Lepidoptera*, including silk-producing *Bombycidæ*. Messrs. Jager and Brooks: *Callimorpha Hera*, and *Cucullia artemisiæ* from Devonshire. Mr. Neave: a very remarkable variety of *Lycæna Alexis*, in which the spots of the underside were replaced by a series of dashes, varieties of *Ennomos angularia*, *Abraxas grossulariata*, &c. Mr. Hickling: four examples of *Sphinx convolvuli* from Sidcup. Mr. Hall: a variety of *A. grossulariata*, also *Dianthœcia albimacula*, *Toxocampa craccæ*, &c. Mr. Cooper: *Pericallia syringaria*, &c. Mr. Gaskell: *Lithosia helveola*, and *Dianthœcia conspersa*. Mr. Croker: various *Lepidoptera*, *Coleoptera*, and *Hymenoptera*. Mr. W. Pearce: *Acherontia Atropos*. Messrs. Eley, Lowery, Barker, &c.: British *Lepidoptera*. Mr. Billups: British and exotic *Coleoptera*, including *Spercheus emarginatus*, *Dytiscus lapponicus*, &c.; also several drawers of British *Diptera*, and *Hymenoptera*, including *Ichneumonidæ*, and a drawer of British Galls, with their makers and parasites, &c.; the method of mounting the specimens was much admired. Mr. West (Greenwich): six drawers of British *Coleoptera*, including *Calosoma sycophanta*, *Chlænius Schrankii*, &c. Mr. Lewcock: British species of *Silpha*, *Prionus coriarius*, *Saperda carcharias*, &c. Mr. Cripp: British species of *Donacia*. Mr. Eley: *Notiophilus rufipes*, &c. Mr. Enock: three cases illustrating the habits of the British trap-door spider.

Apart from Entomology, there were Exhibitions in other Departments of Natural History. Messrs. Danes and Cook: ornithology. Mr. Mackenzie: birds'-eggs. Messrs. Step and Rowe: British land and fresh-water shells. Mr. Step: illustrations of Surrey fungi. Mr. W. A. Pearce: herbarium of British and exotic plants. Mr. A. E. Pearce: admirable water-colour studies of plants.—W. A. PEARCE, Hon. Secretary [abridged by EDITORS].

ENTOMOLOGICAL SOCIETY OF LONDON, *Dec. 2nd*, 1885: J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the Chair.

Lieut.-Col. Blathwayt, of Batheaston, Bath, and S. P. Smith, Esq., of Danes Inn, Strand, were elected Fellows.

Mr. Enock exhibited photographs of *Mymaridæ*, and drawings copied by the "Auto-copyist," which gave satisfactory results.

Mr. Eland Shaw exhibited the species of *Copiophora*, of which a drawing was brought before the last meeting by the President, from an example taken in a hot-house at Birmingham

Mr. Porritt exhibited a melanic variety of *Luperina testacea* from Glasgow, and other melanic *Noctuæ*, which he was unable to determine with certainty. Also an *Agrotis*, probably *A. obelisca*, taken at Southport.

Mr. Dunning read an annotated List of all the Honorary Members elected into the Society since its foundation.

TROPICAL AFRICAN *COLEOPTERA*; CHIEFLY FROM THE ZANZIBAR MAINLAND.

BY H. W. BATES, F.R.S., &c.

Fam. CICINDELIDÆ.

MEGACEPHALA BAXTERI, sp. n. *Maxime elongata, viridi-ænea, antennis (articulis basalibus fusco-annulatis), partibus oris (mandibulis apice nigris), pedibusque flavo-testaceis, his femoribus intermediis apice posticisque fere totis fusco-nigris: thorace elongato lateribus ante basin utrinque dente valida armatis: elytris versus suturam fusco-cupreis, undique sat dense acute tuberculatis, interstitiis sparsissime punctatis; apice sub-acute conjunctim rotundatis.* *Long.*, 34 *mm.*, ♂.

Ugogo, East Central Africa (*Dr. Baxter*).

A remarkably elongated species, the elytra being much more elongated even than in *M. excelsa.* In sculpture and colour it is allied to *M. Revoili* (Lucas), from Somali-land, but differs from that species effectively in the basal end of the sharp lateral margins of the thorax forming a projecting triangular tooth. In this peculiar feature it resembles *M. denticollis* (Chaud.), from the Bahr Ghazal country; the thorax, however, is much longer than in that species, the space between the lateral tooth and the basal margin being especially much greater. The tubercles of the elytra are rather close together, and *nearly equally* spaced, and incumbent, sub-conical, even to the apex.

In *M. regalis* (Boh.), from Natal, the dorsal tubercles are elongated or ridge-shaped; in *M. Revoili* they are more widely spaced, and in *M. excelsa* the elytra are roughly punctured, with the intervals elevated into rather flat tubercles only towards the base, the apical area being nearly smooth.

MEGACEPHALA REVOILI, Lucas, Ann. Soc. Ent. Fr. Bull., 1881, 137; Revoil, Faune et Flore du Pays Çomalis, p. 3, tab. 1, fig. 1.

Ugogo (*Dr. Baxter*), one example, agreeing well with the figure and description above cited.

DROMICA (MYRMECOPTERA) PURPURASCENS, sp. n. D. giganteæ *(De Breme) affinis; differt corpore angustiori thorace lateribus nullomodo angulatis, elytris utrinque macula elongata sub-basali marginibusque posticis albis. Subæneo-nigra, elytris obscure purpurascenti-cupreis, corpore subtus pedibusque nigro-nitidis femoribus basi cupreis: thorace capite angustiori prope basin angustato et constricto, margine laterali vix acuto perparum arcuato, dorso grosse undulato-ruguloso, medio griseo-hirto: elytris utrinque lineis* 5 *elevatis nitide-cupreis fere usque ad apicem extensis,* 6^{toque} *sub-humerali abbreviata, interstitiis confluenter punctatis sub-areolatis. Long.*, 20—25 *mm.*, ♂ ♀.

I have compared this fine species with *D. gigantea*, from Natal, as being better known; it is more closely allied, however, to *D. Mauchii* (Bates = *D. Oatesii*, Westw., in Oates' Matabele-land, p. 359), both differing from *D. gigantea* in the thorax being longer and narrower, with its lateral margin more obtuse and gently curved, without angles: in these respects both stand midway between *D. gigantea* and *D. limbata* (Bertoloni). *D. purpurascens* differs from *D. Mauchii* in its purplish-coppery elytra, the shining raised lines of which are all longer, reaching within a short distance of the apex; the first, at least, as long as the four others. The short streak or elongated spot on each elytron is distant from the base in *D. pupurascens.* The labrum is black, with a tawny-white central vitta in both sexes. The joints 5—10 of the antennæ are very much wider than in *D. gigantea* and the elytra more ovate, in both sexes gradually narrowing to the base, with obsolete shoulders.

Mamboia, East Central Africa (*Mr. J. T. Last*); several examples.

DROMICA (COSMEMA) QUADRIGUTTATA, sp. n. D. citreoguttatæ (Chaud.) *angustior. Lineari-oblonga cuprascenti-nigra, elytris lateribus carinaque utrinque mediana valde obtusa, nitidis, utrinque maculis duabus rotundis a margine sat distantibus flavis,* 1^{ma} *mox pone medium,* 2^{nda} *ante apicem: labro* (♀) *nigro, vitta mediana flava: capite lato,* (*oculis valde prominentibus*) *undique eleganter strigoso: thorace fere cylindrico, undulato-strigoso*: elytris anguste *oblongis* (♀), *angulo suturali dentato, dorso confertim grosse punctatis: corpore subtus cyaneo-violaceo, coxis femoribusque basi viridi-æneis pedibus nigris: antennis filiformibus, gracilibus.* *Long.*, 15 *mm.*, ♀.

Distinguished from all other described species by its elytral markings—two round whitish spots on each, distant from the margin, by the obtuse costa down the centre from the base nearly to the apex, on which the punctures are less dense than on the rest of the surface, and by the short and broad head, broad and flattened between the very prominent eyes, and suddenly narrowed behind. The elytra are moderately narrowed towards the base and have distinct humeral angles.

One female example taken near Mamboia by Mr. Last.

Fam. CARABIDÆ.

Sub-fam. *SCARITINÆ.*

Ochyropus gigas, Schiödte, Kröyer Tidskr., 1847, p. 350, tab. iv, figs. 1—4. *O. lucanoïdes*, Putzeys, in Chaudoir, Monogr. d. Scaritides (1879), p. 22, note.

Usambara. One example taken by the Ven. Archdeacon Farler.

Chaudoir confounded this species with the much commoner West African *O. Savagei*, of Hope, apparently not having studied Schiödte's excellent description and figure, in which the broadly flattened penultimate joint of the labial palpi, the longer and straighter mandibles, the frontal cavity, the peculiar form of the thorax, and the absence of conical projection behind the eyes, are clearly described and figured. The middle tibiæ have a row of short strong spines on their outer edge above the sub-apical spine; in *O. Savagei* the short spines are reduced to small denticulations. The maxillæ are curved and pointed at the apex; in *O. Savagei* they are broadly obtuse. According to Chaudoir's classification this would place the two species in different genera and in different chief sections of the sub-family; the form of the mentum is also different and the side lobes quite free from thickened margins, whilst they are margined in *O. Savagei*, as in the restricted genus *Scarites*. The species is found in West as well as in East Africa, in similar latitudes.

Mamboicus, nov. gen.

Facies gen. Crepidopteri *sed gen.* Ochyropo *magis affinis. Caput sicut in* Ochyropo Savagei; *mandibulæ* (♂) *elongatæ, sub-rectæ, læves; genæ post oculos valde prominentes acute conicæ. Mentum lobis extus haud carinatis. Maxillæ curvatæ, acutæ; palpi labiales articulo penultimo lineari compresso*

Antennæ thorace paullo longiores, filiformes, robustæ. Thorax brevis, angulis posticis dentatis, basi minime lobatus. Elytra sat breviter oblongo-ovata, marginibus acute usque ad apicem carinatis. Metathoracis episterna brevia. Abdomen segmentis haud transverse lineatis. Tibiæ intermediæ unispinosæ, et spinis 5—6 brevioribus. Tarsi articulo 5^{to} *quam 2—4 conjunctis breviori.*

Approaches nearest the genus *Ochyropus*, the head and mandibles being very similar in shape to that of *O. Savagei*, the mandibles shorter in the ♀ than in the ♂. The normally slender tarsal claw joint and the metathoracic episterna very little longer than broad, with correspondingly shorter and more ovate elytra effectually distinguish it from that genus.

MAMBOICUS LASTII, sp. n. *Niger, nitidus, capite thoraceque brevibus, hoc antice arcuatim emarginato, angulis vix productis, marginibus post denticulum perparum sinuatis: elytris limbo laterali lato sub-opaco, valde striatis, interstitiis convexis,* 7^{mo} *acute reflexo-carinato, epipleuris concavis lævibus; basi fere rectis humeris dentatis: sulcis frontalibus profundis parallelis, lævibus.* *Long.*, ♂ (*mand. incl.*), 25 *mm.*, *mand.* 4½ *mm.*; ♀, 21 *mm.*, *mand.* 3½ *mm.*

Mamboia, (*Mr. Last*); two examples.

The front edge of the clypeus has two scarcely prominent teeth.

MENIGIUS AFRELLUS, sp. n. *Sat graciliter elongato-ovatus, niger nitidus, epistomate omnino acute striolato, oculis prominentibus, mediocribus, tuberculo genarum multo minori et minus prominenti: thorace transversim quadrato, basi haud lobato, dente laterali parva distincta: elytris basi utrinque versus humeros dentatos obliquatis, granulatis, valde striatis, striis impunctatis interstitiis convexis* 7^{mo} *convexiori et angustiori, stria* 4^{ta} *tripunctata* (1^{mo} *prope basin,* 2^{ndo} *et* 3^{io} *versus apicem*)*: tibiis intermediis unispinosis et pluridenticulatis.* *Long.*, 19 *mm.*

Mpwapwa (*Mr. Last*); three examples.

Agrees with Chaudoir's definition of his genus *Menigius* in all characters except the distinct but small tooth at the lateral-basal angles of the thorax. In his *M. Schaumi*, from Guinea, he says, "sans vestige de dent." The genus is distinguished from *Tæniolobus* by the singular form of the apex of the maxillæ, obtuse, but prolonged laterrally into a sharp tooth, visible only from beneath under the hair fringe. The abdominal segments have very faint transverse basal sulci.

MENIGIUS (?) MAMBOIANUS, sp. n. *Elongato-ovatus, convexus, niger nitidus, mandibulis* (♀?) *brevibus, striatis, capite rugulis undulatis haud profundis, sulcis frontalibus brevibus sub-parallelis, epistomate antice bidentato, genis, post oculos modice convexos, tumidulis, rotundatis; thorace transversim quadrato, lateribus post denticulum perparum sinuatis, lobo basali vix ullo:*

elytris sub-ovatis, basi utrinque obliquatis, grosse granulatis, apice conjunctim sub-acuminatis, sat acute striatis, interstitiis vix convexis 3^io^ *longe post medium unipunctato: tibiis intermediis unispinosis et pluridenticulatis. Maxillæ apice breviter falcatæ. Epistoma metathoracis brevia.*

Long., 11 *mm.*

Mamboia (*Mr. Last*); one example.

The ventral segments have faint traces of a transverse sulcus in the middle of the fore-margin. The elytra have no traces of lateral carinæ. The species differs from *Menigius* in the maxillæ being curved and pointed at the apex, but the hook is very short.

CHONDRESSUS, nov. gen.

Corpus elongato-oblongum parum convexum. Caput breve; oculi cum tuberculo genarum valde prominentes. Maxillæ apice acutæ, curvatæ. Mentum lobis extus marginatis (haud intra marginem carinatis): paragenæ intus valde dentatæ. Antennæ filiformes, mediocriter elongatæ, geniculatæ. Thorax subsemicircularis, angulis anticis truncatis ibique sulco marginali continuo, profundo; angulis posticis dentatis, margine ante dentes crenulato. Elytra oblonga, basi lata sub-truncata dente humerali valida, margine laterali a humeris usque ad apicem acute carinato. Pedes sat graciles; tibiæ intermediæ pluridenticulatæ et versus apicem validius unispinosæ: tarsi articulo unguiculari cum unguibus sat elongato. Metathoracis episterna brevia, latitudine perparum longiora. Abdomen alutaceum segmentis, haud transverse sulcatis bipunctatis.

Differs in important characters from all the numerous genera into which Chaudoir divided the old genus *Scarites*.

CHONDRESSUS GRANULIPENNIS, sp. n. *Elongatus sub-rectilateris, niger nitidus, elytris opacis undique subtiliter granulatis: mandibulis striatis; epistomate antice bidentato versus angulos acute multistriato, sulcis frontalibus profundis, interspatio antice fovea elongata: clypeo ante oculos sat late rotundato-dilatato, genis oculos postice amplectentibus, oculo magis prominentibus, rotundatis: thorace lato et brevi, angulis anticis truncatis, marginibus post denticulum fere rectis, obliquis, lobo basali brevissimo: elytris striatis, interstitiis paullo convexis* 7^mo^ *acute reflexo-carinato, basi latis fere rectis ibique grosse granulatis, humeris valde dentatis; tibiis intermediis unispinosis et pluridenticulatis.* *Long.*, 21 *mm.*

Mamboia (*Mr. Last*); one example.

SCARITES MOLOSSUS, Klug, Peters' Reise nach Mosambique, Zool., p. 155, t. viii, fig. 9.

Mpwapwa (*Dr. Baxter*); two examples, without trace of punctures in the elytral striæ. In specimens from Lake Nyassa, the striæ are conspicuously punctured.

SPAROSTES BREVILOBIS, sp. n. S. brevicolli (*Putz.*) *similis, sed differt clypei lobis lateralibus brevibus latis antice late rotundatis, striola scutellari elongata, conspicua, etc. Cylindrica, piceo-nigra polita, antennis pedibusque rufescentibus; labro medio late triangulariter emarginato; genis ante oculos leniter rotundatis, post oculos haud prominulis occipite post oculos haud tuberculato: elytris punctato-striatis, sutura apud basin haud depressa striolaque scutellari valde elongata, interstitiis paullo convexis* 3^{tio} *quinquepunctato: metasterni lateribus ventroque toto sparsim punctulatis.* *Long.*, 20 *mm.*

Zambesi (*Dr. Bradshaw*).

Similar in size and facies to the larger individuals of *S. brevicollis*; but distinguished at once by the anterior angles of the clypeus not being prolonged to the apex of the labrum, as in that species and in *S. striatulus*, but only slightly advanced and broadly rounded at their apices. The 8th elytral interstice, as in the other species of the genus, is narrow and cariniform at the extreme base and apex.

Sub-fam. *PELECIINÆ.*

DISPHÆRICUS MULTIPORUS, sp. n. D. quangoano (*Quedenf.*), *affinis et quoad formam similis, sed elytris versus basin minus longe angustatis, thorace utrinque biseriatim punctato, etc. Castaneo-rufus* (*immaturus?*) *palpis antennis pedibusque rufo-testaceis; thorace breviter ovato basi angustissime constricto ibique bisulcato, lateribus utrinque biseriatim setifero-punctatis, nec sulcatis, discoque antico punctis similibus confuse dispersis: elytris ovatis, a quarta parte antica usque ad pedunculum recte angustatis, punctulato-sulcatis* (*sulco suturali et marginali solum basin attingentibus*) *interstitiis* 3^{tio}, 5^{to}, 7^{o}, 8^{o}, *et* 9^{o} *versus basin punctis setiferis nonnullis impressis.* ♂. *Tarsi antice articulis* 4 *late dilatatis* 4^{to} *breviter bilobato; tibiæ gradatim dilatatæ apice extus acutissimæ.* *Long.*, 10 *mm.*, ♂.

R. Ogowé.

Smaller than *D. quangoanus* (Quedenfeldt), which, from the long and gradual attenuation of the elytra towards the base, must be specifically different from *D. gambianus* (Waterhouse), of which Quedenfeldt considered it a variety. *D. quangoanus* differs clearly from our species in the thorax having a single row of setiferous punctures on each side, in an impressed line, with a few larger punctures on its inner side. In *D. multiporus* there are two rows of large punctures, the lower one (representing the single row of Quedenfeldt's species) in a line curved downwards, and shortened at both ends, the inner consisting of twelve punctures in an uninterrupted row from base to apex. The dilated middle tibiæ are, perhaps, a sexual character.

DISPHÆRICUS TARSALIS, sp. n. *Niger nitidus, palpis et tarsis testaceo-rufis antennis extus rufescentibus: thorace ovato basi angustissime constricto,* *lateribus linea impressa simplice et intra lineam punctis setiferis* 4 *late separatis: elytris prope basin solum citiusque angustatis punctato-sulcatis, interstitiis lævibus.* ♂. *Tarsi antici sicut in* D. multiporo; *tibiæ intermediæ versus apicem dilatatæ et apice spinosæ.* *Long.*, 7½ *mm.*

Angola (*Monteiro*).

Not much larger than the Natal *D. ebeninus* (Chaud. = *natalicus*, Westw.), from which it differs *inter alia* in the sculpture of the elytra, *D. ebeninus* having only a sutural and marginal sulcus, and the disc quite smooth. The ventral segments are very convex, and their articulation marked by a deep sulcus, as in *D. ebeninus* and *D. multiporus.*

DISPHÆRICUS LASTII, sp. n. *Longius ovatus, nigerrimus, palpis antennis extus tarsisque obscure rufescentibus: oculis minus prominentibus: thorace subquadrato-ovato, basi angustissime constricto; lateribus marginatis et linea impressa medio unipunctata: elytris longius ovatis prope basin curvatim angustatis, sulco lato suturali punctato (basin haud attingenti) fovea juxta basin, striisque punctatis duabus marginalibus (interiori versus apicem sulcata), disco lævi.* ♂. *Tarsi antici articulis* 4 *maxime dilatatis. Tibiæ anticæ apice extus spina valida exstanti armatæ; intermediæ apice dilatatæ.*

Long. 12—14 *mm.*, ♂.

Mamboia (*Mr. Last*); four examples, all males.

Sub-fam. *PANAGÆINÆ.*

TEFFLUS MEGERLEI, Fab.—A good structural character, distinguishing this from the allied large species, has been recently discovered by Quedenfeldt, viz., the straight carina of the outer edge of the anterior tibiæ in both sexes, from the base to the long and outwardly-directed apical spine. This is shown in numerous examples found in East Africa, at Mamboia, and Mpwapwa, which differ from Senegal and Guinea examples of *T. Megerlei* only in the narrower head and neck, and correspondingly narrow thorax (between the anterior angles) and more sinuated front margin. In these features they approach the true *T. Delegorguei*, from South-East Africa, which is considered by Quedenfeldt, I think unnecessarily, as a var. of *T. Megerlei.*

TEFFLUS HACQUARDI, Chaudoir, in Oberthür's Coleopt. Novitates, i, 29. This appears to be the commonest of the large black species of *Tefflus* in Eastern Equatorial Africa. It has the heavy, robust form, long antennæ, and broadish head and neck of *T. Megerlei,* but the finer rugose-punctate thorax of *T. Delegorguei.* Its best distinguishing character, however, is the distinct dilatation of the anterior tibiæ near the apex, caused by a strong flexure of the carina; a structure quite different from the dentiform projection in the same place, which distinguishes the *T. denticulatus*, described by General Quedenfeldt. The thorax is very variable in outline.

Found at Mombasa (*Mr. Wakefield*), Taveita (*J. Thomson*), and Mamboia (*Last*).

TEFFLUS BREVICOSTATUS, Quedenfeldt, Berl. Ent. Zeit., 1883, p. 275, tab. iii, fig. 14.

Usambara (*Archdeacon Farler*). General Quedenfeldt's typical example in the Berlin Museum came from the same district.

TEFFLUS CARINATUS, Klug, Peters' Reise, Zool., p. 161, t. 9, fig. 7.

Mombasa (*Mr. Wakefield*).

According to Quedenfeldt, who has examined Klug's type in the Berlin Museum, this is nothing more than a black form of *T. violaceus*, Klug.

TEFFLUS VIOLACEUS, Klug, Peters' Reise, Zool., p. 161, t. 9, fig. 8. *Var. purpuripennis*, Chaudoir (MS.).

I have not seen the true *violaceus* from the mainland in the latitude of Zanzibar, but it has been sent in great abundance and without any admixture of *T. carinatus* or other variety, from Lake Nyassa. It appears to be represented nearer the equator by the purple-coppery var., named *T. purpuripennis*, by Chaudoir. Usually this form is rather smaller, more slender, and offers a much scantier punctuation on the prosternal episterna than *T. violaceus*. My examples are from Bagamoio and Usambara, near the coast. 200 miles in the interior a larger and broader form, like the true *violaceus*, ♀, is found, with coarsely punctured anterior episterna.

TEFFLUS CRIBRICEPS, Chaudoir, in Oberthür's Coleopt. Novitates, i, 29.

Mpwapwa; one example.

A very distinct hairy species, with the sides of the thorax sharply sinuated near the base, and then straight to the perfectly rectangular hind angles. M. Oberthür's specimens were from Mhonda, not far from Mpwapwa.

TEFFLUS CYCHROIDES, sp. n. *In hoc genere gracillimus; niger, nudus; capite angusto post oculos elongato, lævi, vertice convexo: thorace anguste rhomboïdeo, ante basin lateribus parallelis angulisque posticis rectis, confertim sat grosse vermiculato-rugoso: elytris graciliter ovatis antice gradatim angustatis, humeris nullis, costis angustis, interstitiis crebre transversim rugatis: episternis anticis politis impunctatis.* *Long.*, 30 *mm.*, ♂.

Mamboia (*Mr. Last*) ; one example.

Nearest allied, apparently, to *T. muata*, Harold, of West Central Africa ; but the head much narrower and more elongated behind the eyes. The space between the 7th elytral costa and the margin is plane and granulated, as in *T. violaceus*.

CRASPEDOPHORUS GLABER.—*Breviter oblongus, latus, niger nitidus, partibus oris, antennis (basi exceptis) genubus tibiis et tarsis fulvo-piceis, elytris utrinque maculis magnis aurantiacis duabus,* 1^{ma} *sub-humerali interstitia* 5—9, 2^{da} *sub-apicali interstitia* 4—8 *tegentibus : capite lato, oculis valde prominentibus : thorace fere sicut in* C. grosso *(Murray), sed lateribus adhuc latius explanato-reflexis ; elytris breviter subovatis profunde punctulato-striatis, interstitiis impunctatis glaberrimis. Long.* 16 *mm.*

Mount Cameroons ; many examples.

In everything except the more triangular apical joint of the palpi this species accords with the first sub-section of Chaudoir's genus, *Craspedophorus* (Essai Monograph. *Panagæides*, 1878, p. 11). It has very short mesothoracic episterna, much broader than long, strongly crenulated anterior edges of ventral segments, and in the form of the thorax resembles closely *C. grossus*. It differs, however, from *C. grossus* and from *C. ruficrus* (Laf.) and *Lafertei* (Murray) in the more prominent eyes and narrower neck (the crown very coarsely punctured). It is a much shorter and less convex species than *C. grossus*. The thorax is relatively broader and more angularly dilated in the middle, and its surface is very strongly punctured, the punctures in the middle being distinctly separated from each other. In the elytral surface being quite destitute of hairs and the interstices impunctate it is distinguished from all allied species. The anterior red spot of the elytra is quadrate, and reaches nearly to the base, the sub-apical spot is shorter and more transverse, but variable in length. According to the shape of the apical joint of the palpi the species would belong to *Epicosmus*, according to Chaudoir, but all the other characters are those of *Craspedophorus*.

CRASPEDOPHORUS CAMERONUS.—C. Leprieuri (*Castl.*) *proxime affinis. Oblongo-ovatus, niger, palpis, antennis (basi exceptis) tibiis et tarsis piceo-rufis, elytris utrinque maculis duabus aurantiacis*—1^{ma} *interstitia* 5—8 *tegenti apud* 7^{um} *et* 8^{um} *maxime dilatata et humerum attingenti ;* 2^{nda} *sub-apicali minori interstitia* 5—8 *tegenti : capite supra haud depresso, vertice et fronte grosse punctatis ; thorace lateribus late explanatis postice reflexis, medio rotundato-dilatato, antice arcuatim angustato, margine antico profunde sinuato, postice multo magis quam in* C. Leprieuri *angustato ibique margine sinuato et ante anguli denticulum profunde emarginato, toto superficie grosse punctato : elytris punctato-striatis breviter setosis, interstitiis sat sparsim punctulatis. Long.* 15 *mm.*

Mount Cameroons; many examples.

Belongs to the same section as *L. Leprieuri*, in which the posterior episterna are longer than broad, the ventral segments not crenulated on their fore margins, and the neck not constricted above. The thorax has the same broad outline—much broader and more dilated anteriorly than in *C. grossus* and its allies, but it is narrower, especially behind, than in *L. Leprieuri*. The scanty punctuation of the elytral interstices—the punctures not being more than 3 or 4 in a transverse row—and the great length of the red basal spot on the 7th and 8th interstices, further amply distinguish the species.

(*To be continued*).

DESCRIPTION OF A NEW SPECIES OF THE COLEOPTEROUS GENUS *MACRONOTA* (*CETONIADES*) FROM CEYLON.

BY D. SHARP, M.B., F.E.S.

During his recent fruitful visit to Ceylon, Mr. Geo. Lewis met with a *Macronota* apparently previously unknown, and as it is a species of much interest, I have, at his request, described it and named it in honour of the amiable and esteemed wife of A. Haly, Esq., of the Colombo Museum. Mr. Lewis met with this insect on a high ridge on the mountains between Bogawantalava and Balangoda, where, in March, 1882, it was clinging to the the stems of young Cinchona trees. Four or five examples comprise the whole of his captures.

Macronota Halyi.

Nigro-rubro-ochraceoque variegata; capite thoraceque ochraceo-squamosis, nigro-vittatis, hoc utrinque et ante scutellum macula nigra notato; elytris rubris, ochraceo-signatis, hic inde nigro variegatis; pygidio medio macula magna, utrinque macula parva, ochraceis; corpore subtus nigro ochraceoque variegato, pectore femoribusque fulvo-pubescentibus; pedibus rufis.

Long. corp. 18, *lat.* 8½ *mm.*

Clypeus with reflexed margin, not emarginate, rufescent; a medial stripe along the head black, and on each side near the eye a smaller black mark, these marks, separated by broad ochraceous vittæ, converging, but not meeting on the vertex: punctuation confined to the anterior part. The thorax is slightly more than half as broad as the elytra, becomes considerably broader from the front margin till two-fifths of the length is attained, in the remaining three-fifths it becomes slightly narrower, but is broader at the base than at the front margin, the base forms in the middle only a short broad lobe over the scutellum; the greater part of the surface is ochraceous, but the fine lateral margin is black, and there is a black dot near each side just in front of the widest part, there are also two black vittæ along the middle, of somewhat irregular outline and narrower in front, and there is also a black mark of quadrate form in front of the scutellum, which causes the central yellow vitta to be bifurcate at the base; the ochraceous portions have quite the appearance of a coarse squamosity, but this appearance is really only due to excessively fine interruptions caused by a scratching of the surface, a few very short pallid setæ are distributed over the surface, and are most easily perceived on the crenate lateral margin. The scutellum is black, ochraceous at the base, and its sides at the apex are marked with ochraceous in a V-like form; the elytra are in larger part of a dull brick-red colour, feebly depressed along the suture, longitudinally sub-costate along the middle, the costa being broken in front of the middle, and its anterior portion placed nearer the middle than that behind it; along the suture the colour is black, and on the middle this black colour is expanded to form a quadrate mark, which is divided by a furcate ochraceous mark; from the posterior part of this there is an extension of the ochraceous colour backwards, the black colour there being thus limited to the raised sutural margin, there is a transverse sub-reniform mark on each side quite close to the apex; external to the costa there is a black vitta, interrupted by two large ochraceous marks, and some few irregular smaller marks; the surface is marked with some undulate transverse aciculations: the pygidium may be either red or black, and the aciculations are more distinct on it than elsewhere. The under-surface is black, marked with transverse patches of a very pallid ochraceous colour. There is only an extremely slight prominence of the mesosternal process. The male has the second, third, and fourth rings of the hind body concave along the middle, and the front tibia acutely bidentate. The female is unknown to me.

This is a species of considerable interest; in the first place because the strongly margined unnotched clypeus is a very exceptional character in the genus, and next because of its peculiar resemblance to the female of *M. quadrivittata.* In this latter species the male is very unlike its female, whereas the male of *M. Halyi* almost exactly resembles superficially the female of *M. quadrivittata*; I am not acquainted with the female of *M. Halyi*, but have little doubt it will be found closely to resemble the male. We have thus a very curious mimetic analogy between the two species, which may be thus briefly stated: *M. Halyi* and *M. qaadrivittata* occur in company, and structurally are very distinct species, but the female of the latter simulates the appearance of the former species, though the male of *M. quadrivittata* looks very different. I may add that I think it will not be very long before the two insects will be treated as belonging to distinct genera.

Southampton: *December*, 1885.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA.*

BY G. H. VERRALL, F.E.S.

(*Continued from p.* 182).

21. ***Empeda nubila***, Schum.: probably the *Limnobia tenella* of Walker (Ins. Brit. Dipt., iii, 300). The species is not uncommon, occurring in my garden, and I have also caught it at Lymington, Bonchurch, Three Bridges, and in the Isle of Arran. As to the true *Goniomyia tenella*, I must leave that and its allies at present, as I seem to have from four to six species under it.

22. ***Molophilus appendiculatus***, Stæg.: seems to occur all over north and central Europe; it is very common, but usually confounded with *M. ochraceus*, Mg., which is however less common. As I understand them, these two species are clear yellow or ochreous with yellowish wings and the frons almost all yellow.

23. ***M. propinquus***, Egger:

This species and the next differ from the last two by being larger and more obscure in colour, especially on the abdomen; both also have a darkened frons—in *M. propinquus* quite blackish-grey, and both have more smoky-yellow wings. In *M. propinquus* the upper lamella of the male genitalia is broad and seems blunt at its end, it is in fact almost square at its upper inner angle, being only a little produced so that the two lamellæ usually touch there, at the lower inner angle of these same lamellæ are short black hooks, and below and between them the long thin black sickle-like appendages, the lower lamellæ in both species run out in a narrow hairy process on each side.

It is common.

24. ***M. bifilatus***, *n. sp.*: this seems to me to be the commonest British species.

It is allied to the last, but very distinct in the male genitalia; it is also still more obscure, the abdomen being usually entirely darkened except at end, and one female is almost all brownish-grey (= *M. griseus*, Mg.?), the frons is however a little more reddish, the pleuræ are brown rather than ochreous, and the antennæ are usually more darkened, with often the two basal joints more determinately yellow, also what Zetterstedt calls the lower fork of the wing veins is distinctly shorter than the upper, while in *M. propinquus* they are nearly equal; the male genitalia are most distinct from any species, in that they have only two very long black sickle-like middle appendages, no other portion being black, but these two being very prominent; the upper lamellæ are smaller than in *M. propinquus*, but bear at their upper inner angle a pair of shortish rather thick processes, which usually lie close together (just as the lamellæ usually touch in this part in *M. propinquus*); there are no black hooks at the lower inner angle. I do not think this can possibly be Meigen's *M. griseus*, as that must surely be more grey, and seems to have been recognised by Zetterstedt. Walker's *Erioptera grisea* is certainly not a *Molophilus* at all, according to his table, and his type specimen in the British Museum is a true *Erioptera*.

25. *Rhypholophus varius*, Mg.: this rather handsome species occurred freely near here in a wood in the fen at Chippenham last September; Stephens reputed it as British with a query, and Curtis without a query, while in February, 1870, Mr. B. Cooke sent me a specimen named *Erioptera varia*, but his specimen has the last vein short; what it is I cannot make out at present.

26. *R. hæmorrhoidalis*, Ztt.: I captured four specimons of this a few days after taking *R. varius*, in another marshy wood near the fen at Exning.

27. *R. similis*, Stæg: one specimen at Braemar in July, 1873.

28. *Dactylolabis Frauenfeldi*, Egger: the late Mr. J. C. Dale caught many specimens of this, and recognised it as a new species, which he called *Limnobia alpicola*, and even saw it was generally distinct from any other British species, but I do not think he ever described it. One specimen out of several which he gave me has on the label attached to it "Lakes," hence I suppose it occurs in the "Lake District."

29. *Limnophila punctum*, Mg.: Walker's *L. punctum* is only *L. dispar*, Mg., both from description and types, but I caught a true *L. punctum* at Rannoch in June, 1870.

30. *L. fuscipennis*, Mg.: in the New Forest last June; a clear character separating this and *L. discicollis*, Mg., from any *Limnophilæ* I know is that the base of the second sub-marginal cell is at a right angle with the præfurca.

31. *L. lucorum*, Mg.: Walker's *L. lucorum* is only *L. ochracea*, Mg., but true *L. lucorum* occurred freely at Lyndhurst and Lymington last June. *L. lucorum* has the marginal cross-vein at the base of the fork, or exceedingly near the base.

32. *L. sepium*, *n. sp.*: this is probably Zetterstedt's *L. lucorum*, var. β, and had I not taken numerous specimens of each, I should have thought it immature *L. lucorum*; however, I am now convinced it is distinct, as follows:—

L. lucorum.	*L. sepium.*
Pleuræ clear light grey, *never* yellowish.	Pleuræ always yellowish.
Marginal cross vein *at* fork.	Marginal cross vein *after* fork (because the fork is longer).
♂ genitalia brownish-yellow.	♂ genitalia more reddish and more hairy.

In *L. sepium* also the antennæ are more brownish after the base rather than blackish, and the lines on the thorax are more indistinct and the middle one never doubled, the abdomen is more ochreous, with an indistinct dorsal line, also the wings are a little paler.

I caught 19 specimens last June at Lyndhurst, Freshwater, and Lymington, at the last place it was exceedingly abundant.

33. *Idioptera pulchella*, Mg.: numerous specimens of both sexes in June, 1872, near Lyndhurst. Walker's *L. fasciata*, L., is probably this, but he does not mention the short wings of the female.

34. *Pachyrrhina guestfalica*, Westh.: this recently described species is abundant in my garden, while its ally, *P. cornicina*, occurs in the neighbourhood, though not in the garden.

35. *P. maculosa*, Mg.: common by roadsides about here in June, also about Lymington and Lyndhurst. Walker has mixed up this species and *P. histrio* under *Tipula flavescens*.

36. *Tipula scripta*, Mg.: in June at Bonchurch, Lynton, and Boxhill; it is undoubtedly Walker's *T. excisa*, Schum., but Schummel's species has never been clearly recognised.

37. *T. confusa*, Van d. Wulp: abundant on fir trees at Barton in September last; this species was only described in 1883.

38. *T. marmorata*, Mg.: I believe several old specimens which I possess from British collections belong to this species. It is given as British by Stephens, but of course at that time *T. confusa* was not distinguished.

39. *T. obsoleta*, Mg.: Lewes in October, also in old collections.

40. *T. vittata*, Mg.: I have an old specimen which I have no doubt is British. It is included in Stephens' Catalogue.

41. *Pachygaster tarsalis*, Ztt.: I possess a female of this, which was in the late Mr. Wilson Saunders' collection.

42. *Odontomyia angulata*, Pz.: a female which I caught at Tuddenham on July 20th, 1880, I can only refer to this species.

43. *Chrysops quadratus*, Mg.: this makes a third British *Chrysops*, all are very closely allied yet truly distinct; the female may be readily distinguished by the almost isolated black dot on the luteous base of the abdomen. I have specimens from Lyndhurst, Bournemouth, Wicken, and Abbots Wood in Sussex.

44. *Tabanus græcus*, F.: in the late Mr. Wilson Saunders' British collection was a female of this; I would not introduce the species as British, but for the fact that it is widely spread, and has occurred as close as France.

45. *Scenopinus glabrifrons*, Mg.: Mr. H. T. Stainton once gave me a female of this. I do not know its history.

46. *Bombylius canescens*, Mik : our usual small *Bombylius* with unspotted wings is this species; whether we have more than one small species I am at present doubtful.

47. *Rhamphomyia spissirostris*, Fln.: two or three specimens at Tongue on June 18th, 1884.

48. *R. dentipes*, Ztt.: a pair at Lynton on June 17th, 1883.

49. *R. fumipennis*, Ztt.: three specimens (2 ♂, 1 ♀) at Muchalls on June 4th, 1884, and a pair (which I believe belong to the same species) at Rannoch in June, 1870. It is a fine species, and the only large one I know as British which has black halteres.

50. *R. plumipes*, Fln.: this is very close to *R. geniculata*, Mg., which I have already introduced as British (Ent. Mo. Mag., xix, 224), but *R. plumipes* has the legs more brownish-yellow; my two species are clearly those intended by Zetterstedt. *R. plumipes* was abundant at Rannoch in June, 1870.

51. *R. simplex*, Ztt.: a rather small lightish grey species, which I have taken abundantly in May on the banks of the Cuckmere and the Ouse in Sussex, and also at Inverness and Aberlady in June, seems to me to answer very well to Zetterstedt's description of this supposed rare species.

52. *Empis caudatula*, Lw.: common in June or the end of May; I have specimens from five localities in Sussex, two in Cambridgeshire and one in Surrey.

53. *E. æstiva*, Lw.: very common in June and the beginning of July; I have specimens from numerous localities, extending from Penzance to the Lake District and to Newmarket.

54. *E. volucris*, Mg.: a species which I believe to be this was abundant at Lyndhurst on June 22nd and 26th, 1872.

55. *Oreogeton flavipes*, Mg.: common and widely distributed from Penzance to Braemar, and occurring from June to September; it is undoubtedly often mistaken for a *Hilara*; Stephens reputed it as British in his Catalogue.

56. *Clinocera plectrum*, Mik: a few specimens at (I think) Corriemulzie Falls, Braemar, in July, 1873, as I am informed by Mik who has had all my *Clinoceræ* to examine.

57. *Lepidomyia albiseta*, Ztt.: two females at Three Bridges on August 26th, 1874.

(To be concluded in our next).

NOTES ON THE BRITISH SPECIES OF THE GENUS *EUPLECTUS*, INCLUDING A DESCRIPTION OF *E. NUBIGENA*, REITTER, A SPECIES NEW TO BRITAIN.

BY W. G. BLATCH.

In writing the following notes, my aim has been to make the determination of our species of *Euplecti* as easy as possible to Coleopterists, and with that view I have been led to classify them under a somewhat different arrangement than usual. My plan may not be the best possible one, but, at least, it has the merit (so it appears to me) of grouping the species much more naturally than any other I have seen, and also (a matter of no little practical importance) of simplifying the work of naming specimens. Of most of the species I have examined a large number of examples, not only in my own collection, which is considerable, but in several others, the owners of which have kindly placed them at my service. I am much indebted to Mr. P. B. Mason for his kindness in allowing me the free use of the collections formed by Mr. Rye and Mr. Wilkinson, also to the Rev. W. W. Fowler, Dr. Power, and others.

My first idea (having been very successful in hunting up these interesting little beetles) was simply to record my own captures, with notes of localities and stray observations on points of difference in certain species; but, in working up the matter, my jottings multiplied and grew until they assumed the form in which I now present them to my co-workers, the readers of the Ent. Mo. Mag., to whom I trust they will prove of some use.

I. Abdomen with a more or less sharply defined depressed area, in middle of base of first two dorsal abdominal segments; dorsal striæ on elytra distinct, and reaching more or less nearly to middle.

A. Species lighter, red or reddish-yellow.

a. Head with a distinct basal fovea.

1. E. Kunzei, Aubé, Sturm, Col., 1841, p. 49; Ann. Soc. Ent. Fr., 1844, p. 143; G. R. Waterhouse, Trans. Ent. Soc. Lond., 1861. *E. brunneus*, Grimmer; E. Reitter, Best. Tab. Eur. Col., v, 524.

Long., 2 mm. This species may be recognised, *inter alia*, by its large size, reddish colour, the superior size and squarish form of its head, with its basal fovea, the rather deep depressed area on the first two segments of the abdomen, the sides of which depressions are divergent, and also by the characters of the ♂. In that sex the 5th ventral segment of the abdomen has an oblong impression in middle of base, the 6th segment is widely emarginate at the apex, and bears on each side a tubercle tufted with long whitish hairs; the sides of the abdomen underneath are also clothed with rather long hairs.

Of this fine species I have seen three specimens, a ♂ taken by Dr. Power at Darenth, and two ♀ from Rye's collection. It is evidently very rare.

b. Head without any distinct basal fovea.

1. E. Duponti, Aubé, Mon. Pselaph., p. 57.

Long., 1·6 mm. Similar in size and general appearance to *E. Kunzei*, but with head rather smaller, and more contracted and rounded behind eyes, which are slightly more prominent. Thorax with a discoidal channel, the basal foveæ connected by only a rudimentary transverse groove. Dorsal striæ on elytra somewhat longer than in *E. Kunzei*, and parallel with sutural striæ. The depressions at base of abdomen feebler and parallel-sided. Legs stouter, and with all tibiæ in the ♂ armed with a small spur at apex, that on posterior tibiæ being rudimentary and placed just before apex. The ♀ seems to be smaller and duller than the ♂, and less distinctly punctured.

I have seen two examples (♂) of this well-marked species, both belonging to Mr. P. B. Mason, one of them standing in Rye's collection under the name of *E. punctatus*, and the other in Wilkinson's collection. The latter was accompanied by a ♀ which, to my great regret, whilst in my temporary possession, became accidentally damaged beyond recognition.

Found by Mr. Lawson near Scarborough. Very rare.

2. E. punctatus, Muls., Opusc., 12 cah., 1861, 76.

Long., 1·4—1·5 mm. Smaller than either of the preceding species; reddish-yellow, with lighter antennæ and legs. Head large, but rather short, very wide across eyes, especially in ♂, and strongly punctured all over, except on depressed front margin; antennæ shorter than in *E. Kunzei* and *E. Duponti*. The thorax is also more or less strongly punctured all over, the discoidal channel rather large, and often continued to central basal fovea. The elytra are not so strongly punctured as the other parts, and the basal depressions on abdomen are much narrower and feebler than in *E. Kunzei*. The ♂ has a spur at apex of intermediate tibiæ and a deep fovea on last ventral abdominal segment; the same segment in the ♀ has a shallow fovea.

I have captured this species in some numbers in Sherwood Forest, and also more sparingly in the New Forest, Dean and Bewdley Forests, on Cannock Chase, and at Knowle and Salford Priors in Warwickshire, always under bark.

Represented in Rye's collection by a ♂ *E. Duponti* and a ♀ *E. Karsteni*.

3. E. Karsteni, Reich., Mon., p. 71, tab. 2, fig. 21; Waterhouse, *loc. cit.*

Long., 1—1·2 mm. Slightly inferior in size to *E. punctatus*, with thorax much more narrowed behind. The two large frontal punctures on the head are placed close to the side margin, a constant character, and apparently peculiar to this species. ♂ with a very rudimentary spur near apex of intermediate tibiæ. Basal depressions on abdomen shallow with divergent sides.

This species is sometimes made to do duty for *E. punctatus*, and I constantly find it mixed up in collections with *E. signatus*; specimens of the latter, on the other hand, being frequently substituted for *E. Karsteni*.

I do not consider this a very common species, although I have met with it in most localities in which I have hunted for *Euplecti*, including Smallheath, Edgbaston, Sutton Park, and Knowle near Birmingham, Salford Priors, Cannock Chase, Bewdley Forest, and Sherwood. It is found in hot-beds in company with *E. signatus*, amongst *débris* in barns, and also under bark of dead trees.

4. E. SIGNATUS, Reich., Mon., p. 73, fig. 22; Waterhouse, *loc. cit.*

Long., 1·1—1·2 mm. Generally a little larger than *E. Karsteni*. Head punctured at sides only above the eyes, grooves deep, convergent, uniting in a curve with the transverse depression in front, the puncture at each end of the latter being placed farther from the side margin than in *E. Karsteni*. Depressions at base of abdomen moderately deep, their sides divergent. Intermediate tibiæ of ♂ armed with a small spur at apex, varying in size in different individuals. 6th ventral segment of abdomen in ♂ emarginate, with a large deep fovea in middle, on each side of which is a very minute tubercle.

Abundant in hot-beds. On one occasion I found two specimens in rotten wood in Sherwood Forest.

B. Species darker, black, pitchy-black or pitchy-red.

a. Head with a distinct basal fovea.

1. E. NANUS, Reich. *E. Kirbyi*, Denny, Mon. Psel.; Waterhouse, *loc. cit.*; Ent. Mo. Mag., xvi, 123.

Long., 1·5 mm. The coloration of this species is peculiar, the fore parts being pitchy and the abdomen reddish, the antennæ and legs lighter. Pubescence rather long. Grooves on head strongly convergent, forming an inverted V more or less pronounced; frontal pair of punctures absent; the triangular shape of the basal fovea, together with the convergent grooves, give the central raised area the form of an arrow-head. The insect is punctured all over, with a row of punctures in each sutural and dorsal stria, the latter elongate, extending beyond middle of elytra. Basal depressions on abdomen distinct, their sides very divergent. ♂ with a distinct spur at apex of intermediate tibiæ, 5th ventral segment of abdomen deeply and widely emarginate at base, and depressed in middle of apex. 6th segment with a transverse groove in middle.

Rather variable in size, colour and sculpturation. Some examples are uniformly reddish; some are strongly others feebly punctured, and whilst the grooves on the head mostly take the V form, others are decidedly more or less U shaped. On a fair proportion of the specimens I have examined there is a rather distinct short stria midway between the dorsal and sutural striæ of the elytra.

After carefully examining a large number of specimens of both sexes, I have come to the conclusion that the beetle described by Mr.

Waterhouse as *E. Kirbyi* is only a form of this species, although for a long time I was inclined to regard it as distinct.

I have captured this species in some numbers in Sherwood Forest, under bark of fallen trees; also near Birmingham, at Bewdley, Cannock Chase, Hopwas Wood, Windsor, and the New Forest. It occurs in hot-beds, but certainly, in my experience, seems to prefer a sub-cortical life.

b. Head without any distinct basal fovea.

1. E. NIGRICANS, Chaud. *E. Dennyi*, Waterhouse, *loc. cit.* *E. sulcatulus*, De Saulcy. *E. piceus*, Mots.

Long., 1·8 mm. Black or pitch-black, antennæ and legs bright chestnut. Head short and broad, strongly punctured, especially near eyes, temples short, contracted behind, frontal depression traversed by a transverse groove, terminating in a deep puncture on each side. Besides the generally punctured surface there is a row of distinct punctures on each side of suture of elytra. Basal depressions on abdomen broad and shallow, with very divergent sides. The ♂ characters are remarkable; the middle and posterior tibiæ are armed with a rather strong spur at apex, the metasternum is deeply grooved along the middle, and on each side, near the posterior coxæ is a pointed tubercle, the 4th ventral segment of abdomen is bisinuate, 5th segment partly covered by a broad semi-circular plate bearing a blunt tubercle on each side, 6th segment depressed at base, emarginate at apex. Metasternum of ♀ also channelled, but less deeply than ♂.

In Mr. Wilkinson's collection, now in the possession of Mr. P. B. Mason, is a fine ♀ of this species which differs from typical specimens in being more intensely black, and in having very dark pitchy-brown legs and antennæ. It is the only example I have ever seen with the latter characteristics.

Immature specimens of this distinct species are of frequent occurrence, and, being destitute of any trace of the usual pitchy hue, are sometimes mistaken for other and totally different species. I have examined a specimen named by Dr. Sharp as *E. piceus*, and another returned by Brisout as *E. sulcatulus*, both of which are pale forms of *E. nigricans*. The specimens in Rye's collection, standing under the name of *E. Dennyi*, are also referable to this species.

This has generally been considered a rare beetle, but I have never had any difficulty in finding it in abundance; in fact, during the last four or five years I have captured and distributed several hundreds of specimens. It is decidedly a sub-cortical species, but has occurred rarely in hot-beds. Plentiful in the neighbourhood of Birmingham, also at Sutton Park, Knowle, Hopwas Wood, Cannock Chase, Bewdley and Sherwood Forests; in short, I find it in every locality in which I collect.

2. E. SANGUINEUS, Denny, Mon. Psel., p. 10, pl. 1, fig. 2. *E. nanus*, Waterhouse, *loc. cit.*

Long., 1·2—1·5 mm. Dark specimens of this very common species often do duty in collections for *E. nigricans*, but no one who has seen the two beetles can possibly confuse them, except through carelessness. Compared with *E. nigricans*, *sanguineus* is smaller and lighter coloured, head not so short in proportion to its width, temples longer and not so strongly rounded off behind, and the antennæ shorter. Thorax and elytra similarly formed, punctuation of latter feebler. Depressions at base of abdomen very deep, sides nearly parallel, and not extending so far backward as in *E. nigricans*. ♂ with a spur at apex of intermediate tibiæ only, 6th ventral abdominal segment emarginate at apex and with a deep depression in middle.

Abundant in hot-beds. I once found a few specimens in Sherwood Forest amongst *débris* under decaying logs, but never under bark.

3. E. BICOLOR, Denny, Mon. Psel., p. 17. pl. 2, fig. 3; Waterhouse, *loc. cit.* *Bibloporus bicolor*, Thoms., Scand. Col., 1861, tab. iii, p. 225.

Long., 1·1—1·2 mm. Pitch-black, mouth, antennæ and legs pale reddish-yellow. Head small, narrower than thorax, temples very short, the four large punctures arranged in the form of an oblong placed transversely, front margin not depressed. Thorax with a curved longitudinal groove on each side, basal foveæ not connected by a transverse groove. Dorsal striæ on elytra short. Depressions at base of first two abdominal segments very shallow, bounded on each side by a slightly raised, smooth and shining, triangular space. Intermediate femora of ♂ much enlarged and armed with a small sharp tooth at base, middle tibiæ dilated in the form of a strong triangular tooth; 6th ventral abdominal segment widely semicircularly emarginate. Metasternum widely and deeply channelled in both sexes, but most strongly in ♂.

I have met with this singular little species in many localities in the Midland Counties, sometimes in profusion. Very abundant in Hopwas Wood near Tamworth, under bark of oak trees infested (and in process of destruction) by *Rhagium inquisitor*, Sutton Park, Cannock Chase, Bewdley, Sherwood and Dean Forests, always under bark. It affects not only oaks, but birch, beech and other trees.

II. Abdomen without any distinct depressed area at base of first two dorsal abdominal segments; dorsal striæ on elytra very short or entirely absent.

A. Elytra with short dorsal striæ.

1. E. NUBIGENA, Reitter, Best. Tab. Eur. Col., v, p. 522 (1881).

Long., 1·5—1·7 mm. A narrow, elongate species. Shining reddish-yellow, palpi, antennæ and legs paler; pubescence yellow, scanty, much longer at apex of abdomen than on rest of body, a few stronger hairs or bristles placed at intervals. Head rather large, widest behind, with two small deep punctures near base, about equidistant from each other and from sides, from each of which emanates a deep groove, these unite in front, forming an inverted U, and enclose a rather extensive raised area very smooth and shining; eyes small and inconspicuous. Antennæ rather long and slender, 1st joint a little darker than the rest. Thorax rather convex, broadest before middle, rounded in front, much narrowed behind, base finely bordered, a small deep fovea on each side some distance from base, and midway between this is a crescentic fovea, with only an extremely indistinct connecting groove; discoidal fovea very small. Elytra rather elongate, narrowed at base, shoulders prominent, dorsal striæ deep but very short, curved, arising from a small deep puncture at base, midway between humeral angle and suture; sutural striæ straight, a puncture at base of each near scutellum, a regular row of distinct punctures on each side of suture. Abdomen elongate, slightly convex, without any trace of basal depressions. The whole insect is delicately punctured, but, with the exception of the sutural row, the punctuation is entirely connected with the pubescence. Some of my specimens have the femora and tibiæ more thickened in middle than others, and I am inclined to think these must be males, but after a careful examination, I am unable to point out any other difference between the sexes. Reitter describes the ♂ as having a fine longitudinal groove on the abdomen, the anal segment of which has a longitudinal keel.

I first captured this well-marked species (now recorded for the first time as British) in Sherwood Forest, in May, 1884, on which occasion I took a single specimen. On re-visiting the same locality in September, 1885, I had the pleasure of finding four additional examples. All of them occurred under bark of beech and oak logs.

Herr Reitter, to whom I am indebted for his kindness in determining the species for me, says that this beetle is found in the mountainous parts of Moravia and Silesia, Hungary, Caucasus, &c.

B. Elytra without dorsal striæ.

1. E. AMBIGUUS, Reich.

Long., 1 mm. Pitch-brown, covered with a fine grey pubescence. Mouth, antennæ and legs dirty yellow, club of antennæ and femora sometimes smoky. Head rather elongate, widest behind, considerably narrowed in front, with two large deep punctures between eyes, from which proceed two strongly impressed grooves converging in front; eyes rather prominent. Thorax broadest near the fore part, not very strongly narrowed behind, with three deep foveæ near the base, central one the largest, connected by a fine, rather deep transverse groove; no discoidal fovea. Elytra without dorsal striæ, but with six large punctures at base, the outer pair being the strongest. No depressed area at base of first two abdominal segments. Intermediate tibiæ of ♂ with a spur at apex.

This seems to be a scarce species; the only occasion on which I ever found it was some years since at Tewkesbury, soon after an extensive flood. My specimens occurred in moss stripped from poplar trunks, and would appear to have been driven there for refuge, the flood having encircled the trees. All subsequent attempts to procure further specimens from the same locality resulted in failure.

2. E. MINUTISSIMUS, Aubé, Mon. Psel., p. 59. *E. Garneysi*, Fowler, Ent. Mo. Mag., xvi, 158 (1879).

Long., 0·9 mm. Most nearly allied to *E. ambiguus*, but readily separated by its lighter colour and linear form; the eyes also are smaller, and the ♀ has a rather long pointed process at the apex of the abdomen.

[This species was taken by the late Mr. Garneys and myself in flood refuse in June, 1879, in large numbers, at Repton, Burton-on-Trent; it has not been found in Great Britain either before or since that time; it appears, also, to be a rare species on the continent. Aubé's figure bears no resemblance to the insect, but, as M. Brisout says that his types are identical, my proposed name cannot stand.—W. W. F.]

214, Green Lane, Smallheath,
Birmingham: *November*, 1885.

DESCRIPTION OF THE LARVA OF *SCOPARIA ANGUSTEA*, CURT., = *COARCTALIS*, ZELL.

BY G. T. PORRITT, F.L.S.

At the beginning of September, 1884, Mr. G. H. K. Crosland, of this town, brought to me for determination a number of specimens of this species, which he had taken during August on the north side of our cemetery wall. As this wall is within five to seven minutes' walk of my own residence, and as, whenever I had wanted to collect *angustea*, I had found it necessary to take a railway journey of over seven miles, and then sometimes not even see the insect, I was considerably astonished when Mr. Crosland told me he had counted as many as sixty specimens on the wall at one time. I had worked all round the locality with tolerable regularity for towards twenty years and yet had never seen a specimen within miles of the place!

Consequently, it was with much pleasure that on the 21st of July last I accompanied Mr. Crosland to the wall, where, on stripping off the moss, we soon found in plenty both full-fed larvæ and pupæ of a *Scoparia*, which, as I saw at once, did not belong to *muralis*, we had no doubt would prove to be *angustea*. This was further confirmed by our finding before we left the wall, even at that early date, a single fine imago of the species. As I passed the wall three days later—on the 24th,—I found two more imagos, and a week later again I picked off twenty specimens. On this day—the 30th,—also appeared the first specimen from the larvæ and pupæ I had collected. For a week or so from that date, the species was in great plenty, but towards the middle of August seemed to be rapidly decreasing in numbers, though Mr. Crosland told me he noticed specimens on the wall well into September. Altogether, including a nice series bred from the collected larvæ and pupæ, I set about 120 beautiful specimens. How I missed the species for so many years, supposing it to have been always there, is to me a mystery.

After such an experience, I was a little surprised to receive, on the 11th of August, from Mr. H. B. Fletcher, of Worthing, a good supply of quite small larvæ, not more, indeed, than about one-third grown, which Mr. Fletcher said were *angustea*, and which, indeed, I at once saw were perfectly similar to my July larvæ. Mr. C. G. Barrett had told us (Ent. Mo. Mag., xxii, 42) that on the south coast the species is probably double-brooded; and that would have been a satisfactory explanation had not Mr. Fletcher, in referring to Mr. Barrett's paper, written that he was tolerably satisfied only one brood occurred at Worthing, as he could scarcely have missed an early brood had it been present on the spot he found his larvæ. The first imago from these larvæ did not appear until October 10th, and the last on the 27th! It certainly is most odd that with only one brood in the year it should be well on the wing in our northern county before the end of July, and not appear on the south coast until October. The species is generally supposed to hibernate as imago, but whether it does so here I am unable to say. Some of my captured females deposited bright straw-coloured eggs, but it is quite possible that had they been unmolested, they might have retained them until spring.

Length, half to five-eighths of an inch, and, for a *Scoparia*, rather slender. Body cylindrical, and of nearly uniform width, tapering very slightly at the anal extremity: head about the same width as the second segment, and is, as is also the frontal plate, highly polished: skin and the large tubercles smooth and glossy; the segmental divisions deeply cut.

Ground-colour very dark smoky-grey, with an indistinct greenish tinge: head pale brown, the mandibles darker brown; frontal plate very dark sienna-brown, in some specimens as nearly black as possible: tubercles of a darker shade of the ground-colour, in some, like the frontal plate, being nearly black.

Ventral surface of a rather paler shade of the ground of the dorsal area, the legs ringed and tipped with black. Feeds in silken galleries on one of the common wall-mosses.

The pupa is about three-eighths of an inch long; bright pale yellow, the eye-cases, abdominal divisions, and anal tip, brown.

Huddersfield: *January 7th*, 1886.

Suffolk Lepidoptera.—For some years past I have been collecting information about Suffolk *Lepidoptera*, and hope to publish a list shortly. I should be greatly obliged by lists of recent captures, as many of my records are of somewhat ancient date, when those enthusiastic naturalists, the Rev. Joseph Greene and the late Rev. Harpur Crewe resided in that county.—E. N. Bloomfield, Guestling, Hastings: *January 13th*, 1886.

Chærocampa celerio near Bury St. Edmunds.—My friend, the Rev. W. M. Hind, informs me that a specimen of *C. celerio* was taken at Honnington on September 19th. It is strange that so many of this rare species should have occurred this season.—Id.: *December*, 1885.

Danais Archippus at Exmouth.—A few days ago I was passing a cab-stand, when one of the men whom I have long known as a steady fellow, and the biggest "cabby" in Exeter, but certainly never imagined to be a brother entomologist, asked me to give him my opinion about something he had to show; and taking a box from under his driving-seat, he opened it, and, to my surprise, displayed a specimen of *Danais Archippus* unset, but in very good condition.

He told me it had been captured at an open window in Exmouth by some friends of his whilst lodging there during last August, and had been brought to him by them on their return, just in the state in which I saw it. He had not the slightest notion of the real character of his specimen, thinking it must be one of our British species not common in this neighbourhood; in fact, I have no reason whatever to doubt that he gave a true account of its capture.—J. Hellins, The Close, Exeter: *January 9th*, 1886.

An appeal to entomologists.—Two species of insects, both highly ornamental, and neither of them in any way injurious, are attempting to naturalize themselves in our island, these are *Danais Archippus* and *Hypercompa Hera*. The former is the least likely to obtain a home with us, but to my knowledge specimens were both caught and seen near The Lizard last season, and if it can find a food-plant it may fix its abode in the south of England; the other, *Hypercompa Hera*, is found every year in Devon, and is probably annually recruited by fresh arrivals in the Jersey fruit steamers. Now, I wish to ask all true entomologists to give these colonists fair play, and not to attempt to extirpate them; specimens of both can easily be procured for examination if wanted. The captor of *D. Archippus* at The Lizard was offered £5 for one of his specimens! I never heard of an ornithologist offering £5 for the skin of a grey parrot which had escaped from its cage and been unfortunately shot in England. No one of any sense would believe that the *Archippus* was a true native.

The worth of any insect is:—

1. Its actual value as a specimen.
2. The value of any fact that this individual specimen can teach us—in the present case the fact would be that *D. Archippus* is sometimes brought over by American ships.
3. A sentimental value put on a specimen by its captor; as it may bring old scenes or old friends to his mind.
4.—Its value as a type. This, in a doubtful species, may be great: as proving that the specimen in question was the insect described under that name by, for example, Haworth or Stephens. So an insect given by Mr. Stainton with his label and name is a safe type for reference.

These must be the only four sources of value; and as *D. Archippus* is worth sixpence, the would-be purchaser must regard £4 19s. 6d. as the value of the fact that the butterfly may cross the Atlantic in a steamer, and not die of sea-sickness. Old Benjamin Franklin would say that "he pays rather dear for his whistle!"—R. C. R. JORDAN, 105, Harborne Road, Edgbaston, Birmingham: *Dec. 10th*, 1885.

Lycænidæ at Cambridge in 1885.—In connection with the occurrence in England of *Lycæna Argiades*, it is noteworthy how abundant the "blues" generally were last year. I think I never remember seeing *L. Alexis* in such profusion as it was about this neighbourhood, and I also obtained as many specimens of *L. Corydon* as I cared for, although, from unavoidable reasons, I was able to devote very little time to collecting last season.—ALBERT H. WATERS, Mill Road, Cambridge: *January* 16*th*, 1886.

Superstition regarding Acherontia Atropos.—The following story is given me by a friend residing at Teignmouth, who has heard it more than once from the principal actor (or sufferer) in it; and it is by no means a story of ancient days.

A fine specimen of *Acherontia Atropos* had been caught by a sailor on board ship out at sea, and brought ashore and given by him to a youngster, who being fond of curiosities received it as a great prize, and in his pride displayed it on the wall in his mother's room in a case specially made for it. Some time after the young man fell ill, and, during his illness, an old woman, who had officiated as nurse in his early days, and took an especial interest in him, paid his mother a visit of condolence, and unfortunately cast eyes on the "Death's Head." The cause of the illness was seen at once! "No wonder your son has fallen ill! and he'll never be well again as long as *that* thing is in the house!"

Of course she had plenty of instances to relate of the horrible danger of neglecting her warnings, till the mother in alarm promised to throw the unlucky thing away. But that was not enough, it must be burnt; nothing else would avert the impending evils—and into the fire it went. And before long the unfortunate curiosity-lover recovered his health—only to find that the good ladies' affectionate care had robbed him of his greatest treasure!—J. HELLINS, The Close, Exeter: *January* 14*th*, 1886.

Gelechia vilella bred fifteen years ago.—In the month of July, 1870, whilst having a day's collecting on the banks of the Thames near Shoeburyness, I came across a number of larvæ crawling actively about, up and down, on a wooden fence. They were evidently full fed, and seeking a place for pupation. As far as I can remember, they were flesh-coloured, with a strong tinge of pink. At the foot of the fence and by the side of the pathway the common mallow (*Malva sylvestris*) was growing in profusion, and though at that time I was quite ignorant of the habit which the larva of *Gel. malvella* has of leaving its winter hibernaculum and rambling abroad, I fancied my larvæ might belong to that species. I collected a fair number, and from them bred at the beginning of September (or in August) six or seven imagos, which, answering fairly well to the description given of *malvella*, I placed in my cabinet as that species, where they have remained ever since. Although I have twice come across the larvæ of *Gel. malvella* feeding in autumn, I have always failed to breed them.

This last autumn, however, I received a few bred *Gel. malvella* from Mr. E. R. Bankes of Corfe Castle, with which I hoped to complete my series. When, however, I came to compare them, I observed at once that these bred specimens were darker than my old ones, with the dark fascia much more clearly expressed; and, on further examination, I found that my old specimens were in reality not *malvella* at all, but *vilella*, Z., the black dot at the base of the inner margin, which I had failed to notice before, being conclusive. I am not aware if *Gel. vilella* has been recorded as bred, but am under the impression that it has not. Whether the larvæ I found had really fed on the mallow or on some other plant I cannot say; but if, as I believe, the imagos of *vilella* hibernate, and can be beaten from thatch in spring, these larvæ must have fed up the same summer. I hope, if all's well, during the coming season, to renew my acquaintance with the larvæ so unfortunately unrecognised 15 years ago.—W. WARREN, Merton Cottage, Cambridge: *January 12th*, 1886.

Distribution of Lepidoptera.—Mr. Barrett, in his last month's note on this subject, has touched upon a very interesting question, and one which so far has not, to the best of my knowledge, been sufficiently investigated. Surely many Entomologists residing for many years in the same neighbourhood can call to mind numerous instances of fluctuation in the distribution of insects: not only that they may by chance capture a single specimen unknown in their district before, not only that certain insects are common one year and scarce the next, but what is far more interesting, that certain insects apparently become more abundant at the expense of others, and gradually spread by what appears to be a slow migratory wave from one locality to others.

I am not here speaking of the sudden appearance and equally sudden disappearance of such insects as *Colias Edusa* and *Vanessa Antiopa*, which, probably owing to their strong powers of flight, brilliant appearance, and numbers, thrust themselves on our notice and compel our admiration while we confess ignorance of the cause, but I refer to the slower and less obtrusive manner in which many so-called local insects change their metropolis from year to year, and become common where they were formerly unknown.

To explain my meaning further, I will example *Thecla w-album*, *Melitæa Artemis*, and *Arge Galatea*, which have come more especially under my notice at Marlborough, where the entomological records of the College go back for twenty years, and my own observations incorporated with the above for twelve years.

Thecla w-album is, I imagine, a typical local insect, and we had no record of its occurring at Marlborough until 1873; 8 years after accurate records were commenced, when in the August of that year it was taken sparingly by Mr. Meyrick, and singly by myself, in localities some miles distant from each other, but both east of the town. In July of the following year, I discovered what may be called their head-quarters, midway between the localities of the year before, and here they were certainly in hundreds flying about the elm trees, and resting on the flower-heads of *Umbelliferæ* beneath the trees; in fact, Stephens' well known description of the insect at Ripley would (except for the slaughter recorded) have well applied to the present case. Since that year it has been more or less abundant at its metropolis; but what is very remarkable, it has spread during the last ten years to localities it undoubtedly never occupied before, viz.: a part of Savernack Forest, south of the town; stragglers actually in the town; and last year I am creditably informed a locality west of the town. One might draw from this the conclusion, that a slow migration was taking place from east to west, possibly by means of pregnant females wandering by chance circumstances from the head-quarters (as the odd specimens of 1873 may have done), or due to circumstances concerning which we know little.

The case of *Melitæa Artemis* was the converse of the above in many respects, inasmuch as twenty years ago it was captured regularly in two or three localities, and though local, was not, I believe, considered a rarity; however, about the year 1870 the species was almost if not quite extinct, and no record of capture until 1881 appears in the reports of the College Nat. Hist. Soc.: for my own part I am quite satisfied that if the species had occurred during those years I should have known it, as I was furnished with the exact locality, and hunted for it annually, but entirely without success. In 1881 it again appeared singly in widely different localities (the school-field amongst others), thus strangely departing from its usual habits; for the last four years specimens have been taken in similar chance localities, and so far they do not appear to have been able to make up their minds to renew the secluded habits of their ancestors. Are they to be looked upon as skirmishers from an unknown head-quarters on the look out for a better billet; are they the descendants of some chance straggling female; or are they obeying a law of which we are ignorant?

Arge Galatea is first recorded in 1873 from Great Bedwyn, ten miles east of Marlboro', where it occurs in abundance, and only required looking for; it appears to be following the same tactics as *Thecla w-album*, a few odd specimens having been taken by me in localities close to the town where they had certainly not been taken before; whether they will succeed in establishing themselves permanently in these new localities is not yet evident.

On the other hand *Leucophasia sinapis*, a species fifteen years ago not rare with us in one or two copses, and from which I have a specimen, has now entirely died out, but without apparent cause.

The above remarks are confined to the butterflies only, but I imagine that such fluctuations are equally shared by the moths, though I can give no certain data regarding them. In the case of *Bombyces* and *Noctuæ*, the matter would be more difficult to investigate, and in the latter sugaring, carried out systematically for a number of years would have to be done; and this is not always practicable, and includes the proverbial uncertainty of the method. *Geometræ* are more hopeful, but I would lay stress upon the Micros giving the most satisfactory results, as many species are extremely local, and the majority being of weak powers of flight, a migration might be more easily noted.—N. MANDERS, Army Medical Staff, Chatham: *January* 10*th*, 1886.

Note on the synonymy of Perla virescentipennis, Blanchard.—This remarkable species was first published by Blanchard in Gay's "Historia fisica y politica de Chile," Zoologia, vol. vi, p. 99, the title-page of which bears the date 1851. Until recently there was great difficulty in being able to consult this work, and even now the number of copies of it in this country are very few; but it is in the libraries of most of the leading London scientific societies. It is thus not surprising that the numerous Chilian insects described therein have often not been recognised in synonymy. Amongst those I think is *P. virescentipennis.* I find the name nowhere quoted, but believe I am correct in considering the insect identical with *Stenoperla annulata*, Brauer, "Verh. zool.-bot. Ges. Wien," 1869, p. 17, and also with *Diamphipnoa lichenalis*, Gerstäcker, "Festschrift Ges. nat. Freunde zu Berlin," 1873, pp. 62–64, fig. 17. There are slight discrepancies in the various descriptions (I possess the insect and its nymph), but of a nature liable to be occasioned by change of colour through desiccation. The insect is not a *Stenoperla*, McLach., as restricted to the typical species of that genus from New Zealand, and the genus *Diamphipnoa* should stand for it thus:—*Diamphipnoa virescentipennis*, Blanchard, 1851 (1852 ?), = *annulata*, Brauer, 1869, = *lichenalis*, Gerstäcker, 1873.—R. McLachlan, Lewisham, London: *Dec. 28th*, 1885.

On the existence of "scales" on the wings of the Neuropterous genus Isocelipteron, Costa.—I am not aware that up to the present time scales have been recorded as existing in any genus of *Neuroptera-Planipennia* (or *Megaloptera*). They exist in *Isocelipteron.* I had never made a minute examination of *I. fulvum*, Costa (= *Dasypteryx græca*, Stein), of south-eastern Europe and Asia Minor, but had occasion to do so a few days ago. The conspicuous fringe of what look like coarse black hairs near the base of the inner margin of the posterior-wings especially attracted my attention, and even a pocket lens of moderate power shewed that this fringe is composed of what may properly be called 'scales'—short thick black hairs, much dilated (or inflated), and pointed at either end, reminding one of the seeds of certain umbelliferous plants. Microscopic examination seemed to prove that these scales are somewhat flattened, but probably not striated. Moreover, I found that similar scales, but smaller, stand erect on the neuration of the anal portion of the anterior-wings, mixed with the ordinary long hairs, and less conspicuous. My three examples of *I. fulvum* are all males, as is proved by the long caudate appendages. Having made this discovery, I directed attention to the only other species of the genus at present in my collection, which I take to be *I. flavicorne*, Walker (United States). In this species there is no fringe of scales, but semi-erect scales exist on the under-side of the anterior-wings placed on the lower branch of the sector, and on the two cubiti a little before the middle of the wing; and there are similar scales, more thickly placed and almost amounting to a fringe, on the upper-side of the base of the sector in the posterior-wings; the form of the scales is precisely similar to that seen in *I. fulvum.* Of *I. flavicorne* I possess both sexes, and in the females I find no trace of scales, which, therefore, are probably attributes of the male only. This discovery has bearing on another matter. In the North American species the individuals having the wings only slightly excised at the apex have been considered the females (a point doubted by Brauer) of those with the wings strongly excised. My males and females of presumed *I. flavicorne* have the wings equally excised. Therefore, the whole genus stands in need of revision on several points.

In using the generic term *Isocelipteron*, I do not overlook the fact that it is probably only a synonym of *Berotha*, Walker (which has priority), and an examination of the type of the latter made many years ago, convinced me it was so; but in view of new discoveries in structure, a re-examination of *Berotha insolita* is desirable. Moreover, from a monographic point of view, it may be found necessary to retain *Isocelipteron* for *I. fulvum* only, on account of the very dense neuration.

In connection with scales in *Planipennia*, it occurred to me to examine the genus of Ant-Lions known as *Pamexis*, Hagen, with regard to the opaque coloration of the wings. Under the microscope this coloration is seen to proceed from granulose matter (secretion ?), analogous to that which exists in *Coniopteryx;* the pigment is not in the membrane of the wings.—ID.: *January 9th*, 1886.

ENTOMOLOGICAL SOCIETY OF LONDON, *Jan. 20th*, 1886 (ANNUAL MEETING): R. McLACHLAN, Esq., F.R.S., President, in the Chair.

The Officers and Council for the ensuing year were announced as follows:—R. McLachlan, F.R.S., President; E. Saunders, F.L.S., Treasurer; H. Goss, F.L.S., and the Rev. W. W. Fowler, M.A., F.L.S., Secretaries; F. Grut, F.L.S., Librarian. And as other Members of Council:—T. R. Billups, E. A. Fitch, F.L.S., F. Du Cane Godman, M.A., F.R.S., W. F. Kirby, E. B. Poulton, M.A., F.G.S., S. Stevens, F.L.S., H. T. Stainton, F.R.S., and J. J. Weir, F.L.S.

An address was read by the President.

Mr. Stainton proposed, and Mr. Pascoe seconded, a vote of thanks to the President for the address, and that it be ordered to be printed. This was agreed to.

Mr. Dunning proposed, and Mr. Distant seconded, a vote of thanks to the officers for their services during the past year. This being agreed to, Messrs. Saunders, Fitch, Kirby, and Grut severally replied.

Obituary.

We regret to announce the death, at the age of 53, of the *Rev. S. C. Tress-Beale, M.A.*, on the 23rd December, at Tenterden. More than thirty years ago he was living at Tenterden, and supplied the Tenterden localities, which are cited in Stainton's Manual of British Butterflies and Moths. He afterwards moved to Alkham, near Dover, and thence furnished a number of localities for the latter portion of the second volume of the above work. In 1857, he added to our lists the very pretty *Sciaphila cinctana*, mentioned in the Entomologists' Annual for 1858, p. 88. He afterwards left Alkham and returned to Tenterden as the first Vicar of St. Michael's.

ANOSIA PLEXIPPUS, L. (*DANAIS ARCHIPPUS*, F.): A STUDY IN GEOGRAPHICAL DISTRIBUTION.

BY JAMES J. WALKER, R.N., F.E.S.

At the present time, when Entomologists are discussing the probability of the beautiful butterfly first described by Linné under the name of *Papilio* (*Danais*) *Plexippus* (but which is perhaps better known by the Fabrician name of *D. Archippus*) becoming a permanent resident in our islands, on the strength of the dozen specimens or more captured last autumn in the South of England, it may be interesting to give a brief account of the insect and its transformations, and then to consider its present geographical distribution. It is in the latter respect that the butterfly is most remarkable, for within the last thirty or forty years it has spread from its original home in the American continent over more than half the warmer regions of the globe, and now bids fair to soon become as world-wide in its distribution as our more familiar "Painted Lady," *Pyrameis cardui.*

My acquaintance with *Anosia Plexippus* (or rather with the well-marked *Erippus*, Cram., by many Entomologists raised to the rank of a distinct species) began at Monte Video, where, in December, 1880, I found the insect in small numbers. A few months later, at Callao, I had abundant opportunities of observing it in all its stages, it being one of the commonest butterflies of the locality. Here one could make sure, on almost any day in the year, of seeing the imago on the wing, though it was most abundant in January and February, and scarcest in July. The handsome larva, too, was always to be found wherever its food-plant grew, and as it was singularly easy and interesting to rear, I was seldom without several feeding in my cabin on board the "Kingfisher." During our cruise among the South Sea Islands in 1883, the first visitor from the shore of any island we touched at was usually the bold flying *Danais*, and in some of them, considering the recent introduction of the butterfly, its abundance was very remarkable.

As most Entomologists are doubtless familiar with the perfect insect, it need not here be described. According to my own experience, it seems to prefer waste weedy places and gardens near towns and villages, its flight being strong, though rather heavy, and it is not very difficult to catch. As if aware that it is a distasteful morsel to all insect-eating creatures, it seeks no concealment whatever, and I have often seen two or three, at sunset, roosting together on the summit of some tall weed in the middle of a field, and visible a hundred or more yards off.

The egg is laid singly, on the under-side of the leaves of various species of *Asclepias*, more particularly the *A. curassavica*, a very handsome, tall, upright-growing plant, with willow-like leaves and corymbs of showy orange and scarlet flowers, every part being full of an acrid, fœtid, and powerfully emetic milky juice. It is about one-twentieth of an inch long by one-thirtieth in diameter, in shape nearly cylindrical for half its length, then tapering to a somewhat obtuse point, and with a flat base; its form may perhaps best be compared to one of the projectiles for modern rifled guns, known as "Palliser shot." Its surface is sculptured with about 22 strongly carinate longitudinal ribs, between which is a rather larger number of more delicate transverse ridges, and its colour is a pale-greenish yellow.

In four or five days to a week (varying with the time of year) the little larva emerges, and at once falls to work on the flowers and buds of its food-plant, proceeding to the leaves as it grows larger. In three weeks it is full-fed, and is then a very handsome and conspicuous creature, feeding quite exposed, and often stripping the *Asclepias* to the bare stalks.

The full-grown larva is about two inches in length, rather stout, and nearly cylindrical in form, the head and second segment, however, being considerably smaller than the succeeding ones. On the dorsal surface of the 3rd segment is a pair of slender, fleshy, slightly mobile black filaments, nearly half-an-inch long, and a similar but somewhat smaller pair on the 12th segment. The head is yellow, with two concentric ∩-shaped black markings on the face: the mouth-parts, legs, and claspers shining black. The body is regularly annulated with black, opaque white, and bright gamboge-yellow, arranged as follows:—The front and hind-margins of segments 3 to 12 yellow, with a narrow transverse black band reaching the spiracular region: the middle part of the segment white, with a broad, clearly defined black band extending completely round the body, and including the black spiracles and the claspers, above the first four pairs of which is a rather large white spot, slightly tinged with yellow. The second and thirteenth segments have no white markings.

The pupa is suspended by the tail among the leaves of its food-plant, or to neighbouring objects, and is one of the most beautiful I have seen. Its shape is very short and "dumpy" with no prominent angles, and abruptly truncate at either end, the abdominal end especially being nearly hemispherical. The colour is a bright translucent emerald-green, with a narrow transverse black ridge on the hinder edge of the third abdominal segment, bordered behind by a narrow, brilliantly gilded line: on the thoracic segments and wing-cases are several minute tubercles of the brightest golden hue.

This stage lasts from fourteen to twenty days, the colours of the imago, just before disclosure, being very plainly visible through the thin translucent integument. It will thus be seen that, in Peru, the insect passes through all its stages in little more than six weeks, and there is a succession of probably seven or eight broods throughout the year. Beyond the tropics, the annual number of broods is of course less, though, according to Mr. Scudder, there are three or four in the warmer parts of the United States: but at its northern limit, it is probably only single-brooded.

Both larva and imago emit a faint and peculiar odour, which becomes strong and disagreeable when several larvæ are shut up in a close box. Like all the *Danaidæ*, the insect, in all its stages appears to be distasteful to every living creature.

Although small insect-eating birds are wonderfully numerous at Callao, the larvæ are untouched by them, and I have never bred an Ichneumon-fly or any other parasite from the numerous larvæ I have reared. In the United States, however, Mr. Riley informs us that the larva is attacked by a Dipterous fly, *Masicera* (*Tachina*) *archippivora*, Riley. The tenacity of life in the imago is very remarkable, as is also its longevity, as according to Mr. S. H. Scudder, it has been kept alive for fifteen months.

The original home of *Anosia Plexippus* is the American continent, where it enjoys a very wide range, extending from the Hudson's Bay territory and Canada to the Amazon region and Bolivia, or (if we regard *Erippus*, Cram., as a geographical race merely) to the estuary of the Rio de la Plata. Mr. J. Jenner Weir has received it from Moose Fort (lat. 50. 20 N.) where snow lies on the ground for eight months of the year, and I heard of it, though I did not see it, at Esquimalt, Vancouver Island, in nearly the same latitude. It thus ranges over nearly 90° of latitude, and extends farther North than any other of the *Danaidæ* (*D. Tytia* in Japan, and *D. Chrysippus* in South-eastern Europe, barely, if at all, reaching the 40th parallel). Nearly everywhere throughout this vast region, it appears to be common, and in many places, especially in the United States, it is one of the most abundant butterflies. Here it is often observed in prodigious swarms, and according to Mr. Riley (to whose lucid and admirable account of the insect, in the Third Annual Report on the Insects of Missouri, I am very much indebted) the air is sometimes filled with the butterflies to a height of 300 to 400 feet. These vast swarms usually appear in the autumn, and some of them at least, Mr. Riley states, migrate southwards to warmer regions at the approach of winter.

Of late years this range, great as it is, has extended in a wonderfully steady and rapid manner across the whole breadth of the Pacific Ocean, and far into the Malay Archipelago. *Anosia Plexippus*, unobserved by the early voyagers to the Sandwich Islands, is now abundant and firmly established there. In the Marquesas Islands, where it is now the commonest butterfly, I was informed by a Roman Catholic missionary, who had resided forty years on the island of O. Hiva-Oa (Dominica), that he distinctly remembered seeing the first specimens about the year 1860: certainly so conspicuous an addition to the very limited insect-fauna of these islands could not have been long overlooked. In the Society Islands (Tahiti and Eimeo) and the Cook and Hervey groups (Mangaia, Rarotonga, Aitutáki, and Atiú) I saw both the butterfly and its food-plant *Asclepias curassavica* in plenty, and the latter, indeed, is a pest to cultivation in some of the islands. The insect has even reached the remote little island of Oparo or Rāp-á, far away to the southward; but I could not meet with it at Pitcairn Island, nor did any of the inhabitants, to whom I showed specimens, recognise it as existing there.

Mr. G. F. Mathew, R.N. (to whom I am greatly indebted for some most interesting notes on the butterfly as observed by him during his recent cruise in H.M.S. "Espiègle," as well as a full list of localities, given further on), informs me that *Anosia Plexippus* is found throughout the Samoan, Friendly, and Fiji Islands, and is especially abundant in the latter group, which he regards as perhaps its head-quarters (at the present time) in the Western Pacific. It appears also to have reached the North Island of New Zealand, as well as Norfolk Island. In New Caledonia, where it has been long established, it became very abundant some years ago, but is now comparatively scarce, owing, as suggested by Mr. E. L. Layard to Mr. Mathew, to the destruction of nearly all the food-plant by the larvæ. We first hear of its occurrence in Australia in 1870, when Mr. Miskin (Ent. Mo. Mag., vol. viii, p. 17) records its appearance in Queensland: it now seems to have spread throughout all the warmer parts of this great island, and even to Hobart Town (Tasmania) in lat. 42° S. In the New Hebrides, Solomon Islands, New Guinea, and other islands in that part of the Pacific, it appears to be now firmly established and not rare; but it was not seen by Mr. Mathew at the Gilbert, Ellice, and Marshall Islands, nor at the Carolines, though he noticed the *Asclepias* at the latter group, and Mr. Scudder (Psyche, vol. i, p. 81) records the occurrence of young larvæ at Ponapé Island (Carolines) on some "milk-weeds" (*Asclepias*) which had been accidentally introduced. Dr. Semper has recorded the butterfly from Celebes, and Mr. W. F. Kirby informs me that it has been found in Java.

Starting from the eastern coast of America, we find *Anosia Plexippus* throughout the West Indies in company with some curious local forms of the genus; and it has long been established in the Bermudas, 650 miles from the coast of the United States. Two examples, now in the collection of Messrs. Salvin and Godman, were taken in 1864 in the islands of Fayal and Flores respectively, but I cannot ascertain that any have since been found in the Azores, nor did I see the insect when there in October, 1880. It does not seem to have reached Madeira, though *Asclepias curassavica* has found its way to that island.

The first record of the occurrence of *Anosia Plexippus* in Britain is in 1876 (Ent. Mo. Mag., vol. xiii, p. 107), a specimen having been taken by Mr. J. T. D. Llewelyn at Neath in South Wales, on September 6th of that year. This is now in the British collection at the Natural History Museum, South Kensington, and is a very fine example of the ordinary North American type. Another was taken at Hayward's Heath, Sussex, in the autumn of the same year (Entomologist, vol. ix, p. 267). In September, 1877, a specimen was captured by M. Grassal in La Vendée (Petites Nouvelles Entomologiques, II, pp. 253, 254), the only record I can find of its occurrence on the European continent. A specimen is recorded by Mr. J. Jenner Weir (Entom. vol. xix, p. 12), as having been taken near Snodland, Kent, on September 21st, 1881; but the number seen and caught last year far exceeds all that have been previously noted. A round dozen, at least, have been recorded from our southern counties, Cornwall contributing quite half the number, though Devon, Dorset, and the Isle of Wight have also been favoured with the visits of the imposing stranger (Ent. Mo. Mag. vol. xxii, pp. 134, 161, 211; Entomologist, vol. xviii, p. 305).

The question naturally arises: What has caused this truly wonderful extension of the range of *Anosia Plexippus?* We may, I think, dismiss the idea that the insect and its chief food-plants (noxious and poisonous weeds) may have been voluntarily transported to new lands. The seeds, however, of *Asclepias curassavica* are eminently fitted for wide dispersal, being very minute, and enveloped in a great quantity of light cottony down, and it is quite possible that they may have, in the first instance, been carried unobserved to the Sandwich Islands through the medium of commerce. Thus the first great gap of 2350 miles in extent (measured from the nearest point of the American continent) may have been bridged over by the plant. As for the butterfly, its great hardiness and almost complete exemption from the attacks of enemies, joined with its well-known migratory propensities and habit of assembling in great swarms, render its chances of wide dispersal and ready adaptation to a new home especially favourable. It is wonderful to what great distances butterflies and moths are blown out to sea, and in what good condition they remain, all things considered. Mr. Mathew informs me that he has often seen *Anosia Plexippus* "flying at a great height above the ship, sometimes more than 200 miles from the nearest land. During a cruise between New Caledonia and the Solomon Islands, they were to be seen every day, often in numbers. This looked as if a steady migration was taking place, and the S.E. trade wind, which was blowing strongly at the time, was greatly in favour of the butterflies accomplishing their journey in safety." I once saw *Danais Chrysippus* (a much smaller and less powerful insect than *Plexippus,*) flying about the ship when she was

700 miles from the nearest land (the African coast), still strong on the wing and apparently in good order. Mr. J. M. Jones records the arrival of a vast swarm of the small and feeble *Terias Lisa* at Bermuda, which had evidently crossed more than 650 miles of stormy ocean, from the American coast; and a swarm of *Deiopeia pulchella* (another weak flyer) has been recorded in mid-Atlantic (Ent. Mo. Mag., vol. xxii, p. 12), 960 miles from the Cape de Verde Islands, the nearest land from which the moths could have come, and where I have found the species in plenty.

It is, therefore, not difficult to imagine one of the great migrating swarms of *Anosia Plexippus* being blown out to sea from the Californian or Mexican coast, and travelling with the N.E. trade wind; the greater number by far perishing *en route*, but a few stragglers of the host reaching the Sandwich Islands. This may have occurred many times before the introduction of a suitable food-plant, in which case the butterfly necessarily failed to establish itself; but once given the *Asclepias* it would soon be quite at home. Thence it would have no such tremendous expanses of ocean to traverse in order to reach new lands; the scattered islands (Fanning, Malden, Starbuck, Christmas Islands, and others), between the Sandwich group and those in the South Pacific, although small and mostly barren, might serve as stepping-stones in its progress. The distances between these islands, though great enough, are nothing like the first great step from America to the Sandwich Islands, and not more, I should imagine, than the light and downy seeds of the *Asclepias* could be carried by the agency of winds, &c., alone.

As bearing on this origin of the Pacific specimens of *Anosia Plexippus*, it is significant that they all agree with the North American type: the larger pale spots in the black apical portion of the fore-wing being tawny, not white as in those from the Peruvian coast of South America.

The same remarks may apply to its dispersal across the Atlantic; but owing to the much more stormy character of this ocean, and the less steady winds, the chances of the butterfly crossing a given extent of ocean in safety are less favourable. Still many American birds, some scarcely, if at all, as strong on the wing as *Anosia Plexippus*, find their way to our shores from time to time. We must also take into account the chances of the insect resting by the way on some of the numerous vessels constantly crossing the Atlantic, which, as Mr. Wallace suggests (Geog. Dist. of Animals, vol. i, p. 17), may materially aid the smaller and weaker birds in their occasional passage across this ocean. We may, therefore, not wonder that circumstances may combine to carry this hardy and by no means delicate insect from the New to the Old World.

With regard to the probability of *Anosia Plexippus* becoming a permanent resident in our islands, there is, I think, nothing in our climate to prevent its continuance here except, perhaps, the dampness of our summer. We have, however, no plant of the natural order *Asclepiadaceæ* native to our flora, so the larva would have to find a substitute food. According to Mr. Riley, however, the larva is sometimes found on the Dogbane (*Apocynum*), and in the South of England we have two plants of the same natural order (*Apocynaceæ*), the Periwinkles, *Vinca major* and *minor* growing plentifully wild, or at all events naturalized in many places. The Oleander, another shrub of the same Order, is grown in the South of England with only slight protection during the winter, and I believe that one or two species of *Asclepias* are occasionally grown in gardens. If, therefore, as Dr. Jordan suggests (p. 211), the newly arrived "colonists" be not too eagerly caught up, but allowed fair play and a chance to perpetuate their race, it may be that in future years *Anosia Plexippus* may figure in our lists as a (naturalized) "Britisher," and perhaps in part make up for the great loss our insect fauna sustained when the "Large Copper" was improved off the face of the earth.

In the South of Europe, besides the advantage of a warmer and drier climate, a probable food-plant exists in the *Asclepias vincetoxicum*, which is common in the Mediterranean countries, and ranges through Central Europe as far north as Denmark. Hence there is even a greater chance of the insect, if it reaches these countries, establishing itself there than in Britain.

This paper may conclude with a list of localities whence specimens of *Anosia Plexippus* have been obtained, which will give a fair idea of its present distribution.

The National collection possesses specimens from South Wales, New York, Texas, Duenãs (Guatemala), Jamaica, St. Domingo, St. Thomas (West Indies), Venezuela, Brazil, Honolulu, Upolu (Samoan Is.); Tonga-tabu, Solomon Islands, Norfolk Island, and Cape York (North Australia). The six specimens representing the species in the Hewitson collection have no localities attached.

In the magnificent collection of Messrs. Salvin and Godman are examples from E. United States, Colorado, Mexico, Guatemala, Nicaragua, Costa Rica, Veragua, Panamá, New Granada, Ecuador, Eastern Peru, Upper Amazons, Haiti, St. Thomas, Jamaica, Dominica, Samoa, Lifu (Loyalty Is.), Norfolk Island, New Zealand, New South Wales, New Caledonia, Waigiou, New Guinea, Fayal and Flores (Azores); also (race *Erippus*, Cram.) from N. Brazil, Lower Amazon, Pernambuco, S.E. Brazil, and the Argentine Republic.

Mr. G. F. Mathew has furnished me with the following localities in the Western Pacific, where the insect was observed or heard of by him: Sydney, not common; Parramatta, Newcastle (New South Wales), sparingly; Botany Bay, more frequent; Brisbane and Cooktown (Queensland), common; Tasmania, reported to have occurred at Hobart Town; New Zealand, reported from the North Island; Fiji Islands, in great abundance at all the localities visited, but perhaps most plentiful at Suva; Rotumah Island, common; New Hebrides, common at all the islands, and generally abundant; Samoa, not very common; New Britain and Duke of York Islands, noticed; New Guinea, common at Port Moresby, Dinner Island, Kerepuna, &c.; Solomon Islands, common at Ugi; Louisiade Islands, Friendly Islands, very common, especially at Tonga-tabu; New Caledonia, tolerably common though less so than formerly; also at Honolulu (Sandwich Islands), in thousands in 1873.

I have met with the butterfly at Monte Video (race *Erippus* Cram.), Callao and Lima, abundant; Chosica, Peru, abundant; Guayaquil, Panamá, Acapulco (Mexico), Vancouver Island, reported; Fatou-hiva, Taou-ate, O-Hiva-Oa, and Nuka Hiva (Marquesas Islands), generally common; Tahiti and Eimeo (Society Islands), common, especially in Tahiti; Mangaia, Rarotonga, abundant; Aitutáke, common, and Atiú; Oparo or Răp-á Island, one or two specimens seen.

H.M.S. "Cherub," Portland:
11th February, 1886.

DESCRIPTION OF A NEW GENUS, AND SOME NEW SPECIES OF *CORYLOPHIDÆ*.

BY REV. A. MATTHEWS, M.A.

Among the New Zealand *Corylophidæ* in the collection of Dr. Sharp, I found the two very remarkable species described below. In superficial appearance these insects much resemble the *Trichopterygidæ*, but really belong to the *Sericoderina* of the *Corylophidæ*. From *Sericoderus* itself they are distinguished by their peculiarly formed 11-jointed antennæ, and other anatomical differences, and thus constitute a very distinct genus, which I propose to call ***Anisomeristes***, from the unequal proportions of the articulations of the antennæ, and of which the following are the chief diagnostic characters:—

ANISOMERISTES, *gen. nov.*

Body obconic, convex, pubescent, with the hinder angles of the thorax much produced, and the extremities of the elytra sub-truncate. Head entirely covered by the front of the thorax. Antennæ 11-jointed. 1, large and long; 2, ovate, shorter and smaller than the first; 3, small and slender; 4, very short, transverse; 5, much enlarged and produced on the inner side; 6, small; 7, very much enlarged, and much produced on the inner side; 8, very short and small; 9—11 much incrassated, forming a sub-foliate club. Thorax generally large, and much dilated at the base, anterior margin entire, either circularly or ovally rounded, basal margin more or less arcuate, with the angles very much produced. Scutellum moderate, generally rounded. Elytra short, sub-truncate, more or less attenuated posteriorly. Legs moderate, with the tibiæ slightly recurved, setose, and armed with a single spur on the inner side of the apex; tarsi 4-jointed: the 2nd, and sometimes the 1st, joint bifid; 3rd, very small; 4th, long and slender; claws robust, and dentate at the base beneath. Venter composed of six segments, of which the first is very large.

ANISOMERISTES SHARPI, *sp. n.*

L. c., 1·25—1·37 mm. *Brevis, latissimus, postice valde attenuatus, valde convexus, nitidus, pilis longioribus aureis vestitus, pronoto læte aurantiaco, elytris castaneis; pronoto permagno, latissimo, antice circulariter rotundato atque abrupte reflexo, glabro, nitidissimo, margine basali fere arcuatâ angulis longe productis, acutissimis; elytris brevibus, postice valde attenuatis, pronoto parum angustioribus, vix longioribus, ad humeros latissimis, profunde et confertim punctatis, interstitiis glabris, nitidis, striâ suturali antice abbreviatâ, lateribus fere rectis, late marginatis, apicibus vix rotundatis, fere truncatis; pygidio rufo-testaceo; pedibus modicis, gracilibus, læte flavis; antennis magnis, robustis, læte flavis.*

Body short and very broad, much attenuated posteriorly, very convex and shining, clothed with rather long golden hair. Head moderate; eyes moderate; antennæ rather long and robust, bright yellow, with the 5th and 7th joints much enlarged. Thorax bright orange, very large and very broad, anterior margin circularly rounded and abruptly reflexed, smooth, and very shining, basal margin almost arcuate, with the angles very much produced, and very acute. Scutellum short and broad, rounded and punctured. Elytra short, much attenuated posteriorly, castaneous, narrower and scarcely longer than the thorax, widest at the shoulders, very deeply and closely punctured, with the interstices smooth and shining, sutural stria abbreviated anteriorly, sides nearly straight, extremities scarcely rounded, almost truncate. Abdomen with two segments exposed, rufo-testaceous. Legs rather short, bright yellow. Under-parts rufo-castaneous, with the metasternum and apical segments of the venter paler.

Differs from the other species in its larger size, broad form, very large thorax, attenuated elytra, and bright orange colour.

Habitat: New Zealand.

ANISOMERISTES ATER, *sp. n.*

L. c., 1·12—1·25 mm. *Perbrevis, latus, postice valde attenuatus, valde* *convexus, nitidus, aterrimus, pilis aureis, sat longis, vestitus; pronoto magno, latissimo, antice circulariter rotundato, nitidissimo, indistincte punctato, margine basali arcuatâ angulis latis, valde productis; elytris sat parvis, pronoto angustioribus, sat longioribus, ad humeros latissimis, postice valde attenuatis, profundissime punctatis, interstitiis glabris, nitidis, striâ suturali profunde impressâ, lateribus rectis et marginatis, apicibus vix rotundatis; pygidio exserto, nigro; pedibus flavis, femoribus piceis; antennis valde robustis, læte flavis, articulis 5 et 7 valde incrassatis.*

Body broad and very short, much attenuated posteriorly, very convex, shining, deep black, clothed with rather long golden hair. Head piceous, large and broad; eyes rather large and prominent; antennæ bright yellow, very robust, with the 5th and 7th joints very much enlarged. Thorax large and very broad, circularly rounded in front, very shining, indistinctly punctured, basal margin arcuate, with the angles very broad and much produced. Scutellum rather large, sub-triangular. Elytra rather small, rather longer, but narrower than the thorax, widest at the shoulders, and much attenuated posteriorly, very deeply punctured, with the interstices smooth and shining, sutural stria very deep, sides straight and margined, extremities scarcely rounded. Abdomen with the apical segments exposed and black. Legs moderate, femora piceous and tibiæ yellow. Under-parts piceous, and deeply punctured; mouth and ventral segments paler.

Differs from *A. Sharpi* in its smaller size, shorter form, and deep black colour.

Habitat: New Zealand.

To this genus must also be added a species found in Italy and other parts of southern Europe, and lately described by Herr Reitter under the name of *Sericoderus Revelierei*. In this species the antennæ are 11-jointed, and formed on the same type, though not so strongly developed, as in the New Zealand insects. The following characters will be sufficient to distinguish this species from its congeners:—

ANISOMERISTES REVELIEREI, *Reitter*.

L. c., 1·12—1·25 mm. Sub-conical, attenuated posteriorly, pitchy-black, with the elytra either concolorous or more or less rufous on their posterior half; legs and antennæ moderate, yellow.

Differs from both the other species in its smaller size, much narrower form, and less dilated thorax.

I also feel much pleased in being able to add a new species to the rare genus *Peltinus* from some *Corylophidæ* collected in the south of Europe by Mr. J. J. Walker, R.N., and kindly sent to me by Mr. Champion. All the species of *Peltinus* are very minute, and at first sight look like small *Corylophi*, but may be recognised by the abrupt deflection of the front of the thorax. In anatomical details *Peltinus* differs very widely from any other genus; and its antennæ have only ten joints, of which the 6th is very large, almost equal in size to the articulations of the club.

PELTINUS WALKERI, *sp. n.*

L. c., ·75—·87 mm. *Omnino ovalis, validissime convexus, nitidissimus, minutissime et confertim punctatus, interstitiis glabris, haud alutaceis, aterrimus; pronoto modico, antice ovaliter rotundato, margine anteriori vix reflexâ, pellucidâ, minute et confertim punctato, interstitiis glabris nitidissimis, margine basali fere rectâ angulis sat acutis; elytris pronoto duplo longioribus, vix latioribus, ad media latissimis, minute et sat confertim punctatis, interstitiis glabris, nitidissimis, lateribus leviter marginatis, apice obtuso; pygidio minime exserto, nigro; pedibüs brevibus, piceo-testaceis; antennis sat longis, robustis, læte flavis.*

Body perfectly oval, exceedingly convex, very shining, very minutely and rather closely punctured, with the interstices smooth and shining, not alutaceous, deep black. Head very small, piceous; eyes small; antennæ rather long and robust, bright yellow. Thorax moderate, ovally rounded in front with the margin scarcely reflexed and pellucid, minutely and indistinctly punctured, with the interstices smooth and shining, basal margin nearly straight, with the angles rather acute. Scutellum moderate, triangular. Elytra twice longer, but scarcely broader than the thorax, widest at the middle, minutely and rather closely punctured, with the interstices smooth and shining, sides faintly margined, apex very obtuse. Abdomen with the pygidium very slightly exposed, black. Legs rather short, pitchy-testaceous. Under-parts piceous, with the head, prothorax, and edges of the ventral segments paler.

Differs from *P. alutaceus* in its rather larger size, oval and not attenuated form, smaller thorax, piceous legs, large bright yellow antennæ, deep black colour, and sculpture; from other species it may be known by its much larger size and black colour.

Habitat: Europe, found in Sardinia, near Cagliari; J. J. Walker, R.N.

I have dedicated this species in honour of its captor, who for many years has been so well known as an energetic and most successful Coleopterist.

As the genus *Peltinus* appears to be but little known, it may be worth while to add a short diagnosis of the species which have been previously described:—

P. ALUTACEUS, *Reitter.*

L. c., ·63—·75 mm. Sub-hemispheric, very shining, castaneous, distinctly alutaceous throughout; thorax ovally rounded in front, legs and antennæ bright yellow.

Found in Dalmatia.

P. VELATUS, *Duval.*

L. c., ·50—·63 mm. Shorter and more hemispheric than *P. alutaceus*, piceous, and very shining, very faintly alutaceous, thorax circularly rounded in front; antennæ yellow, with the 6th joint very slightly enlarged, legs and apical segments of the venter yellow.

Found in Spain and in Morocco.

P. MATTHEWSII, *Reitter.*

L. c., ·50—·63 mm. Ovate, attenuated in front, exceedingly convex, pale castaneous, thorax ovally rounded in front, smooth, and very shining, elytra distinctly punctured, legs and antennæ bright yellow.

Found in Syria.

At p. 160, *ante*, of this Magazine, the following erratum occurs in my description of *Corylophodes*: line 7, from the bottom, insert "1st" before "very."

Gumley, Market Harborough:
December 8th, 1885.

TWO ADDITIONAL BRITISH SPECIES OF *BRACONIDÆ.*

BY EDWARD CAPRON, M.D.

BRACON OOSTMAELI, Wesm.

Bracon Oostmaeli, Wesm., Nouv. Mém. Ac. Brux., 1838, p. 57, ♀; Vollenhoven, Pinacographia, pl. 24, fig. 8, ♀.

♀. Head black, with reddish spot at the top of the inner orbits, antennæ as long as body. Thorax entirely black, metathoracic space very smooth and shining. Abdomen with 1st segment black, remainder rufo-testaceous above and beneath, entirely smooth and shining, legs rufo-testaceous, with posterior coxæ, extreme base of posterior tibiæ, and all the tarsi, black. Wings deeply infuscated, with an angular whitish mark beneath the stigma. Terebra one-fourth the length of abdomen. Length, 2 lines.

♂ coloured as the female, but the abdomen has a black spot on the last one or two segments, and is somewhat smaller. Length, 1¾ lines.

Three males and three females taken at Shiere in the summer of 1884.

The deeply infuscated wings contrasted with the pale legs and abdomen make it easily identified. It would come under the Rev. T. A. Marshall's 4th section; as he appears not to have received it from any of his correspondents, and Wesmael only had one female, it seems to be not a common species. Vollenhoven's figure is very characteristic. Among the rarer species I have also taken here a single female of *lætus*, and one of Marshall's new species, *exarator*, agreeing entirely with his description.

ASCOGASTER CANIFRONS, Wesm.

Ascogaster canifrons, Wesm., Nouv. Mém. Ac. Brux., 1835, p. 236; Reinh., Berl. ent. Zeit., 1867, p. 364. ♀ ♂.

♂. Black, base of antennæ and legs, with the exception of the coxæ, apex of the four posterior tibiæ, hind femora and tarsi, rufo-testaceous. Meso-thorax reticulato-rugose. Length, 2 lines.

One male taken at Shiere in 1884.

At first sight very like a black-bodied *instabilis*, but at once separated by the rugose unpunctured mesothorax. The hind margin of the head is also much less emarginate, the metathorax distinctly bidentate, and the posterior coxæ transversely rugose.

With regard to the observations made by the Rev. T. A. Marshall, in his monograph, on *Chelonus annulipes*, Wesm., I may here observe that I have met with a female *Chelonus* here which scarcely agrees with any he describes, and seems to answer well to Wesmael's insect. It is a larger and broader insect than *inanitus* (2¾ lines), with testaceous spots at the base of the abdomen, and antennæ with 24 joints; I have taken with it some with the abdomen unspotted, but curiously enough these are even still larger (quite 3 lines), so can hardly be his new species *corvulus*. I have also taken his *carbonator*, which is very different. Mine seems to come nearest to *speculator*, but this again is much smaller.

Shiere: *January*, 1886.

Tenthredinidæ at Shiere.—Hoplocampa cratægi, Klug, was abundant in the blossom of hawthorn in the spring of last year. I also captured one of the rare *H. pectoralis*, Thom. During the summer I likewise took *Dineura verna*, Klug, and *Nematus sub-bifidus*, Thom.

Synærema rubi, Pz.—I see Mr. Cameron says he has not seen the ♀ of this species. I took one in this neighbourhood some years ago; it agrees very well with Thomson's description, with the exception of the scutellum, which is pitchy as contrasted with the rest of the deep black and white mesonotum. It looks as if it ought to be white.—Id.: *February*, 1886.

Myrmecina Latreillei, Curt., at Shiere.—This rare ant was abundant last autumn. I took many of the neuters in moss in the spring, while the winged males and females abounded in the autumn on a chalk hill close to the village. I have never seen it on the sandy side of our stream which divides the chalk from the greensand.—Id.

Chærocampa celerio and Sphinx convolvuli at Ilfracombe.—On or about the 6th of September last (1885), I took a perfect specimen of *Chærocampa celerio* within twenty yards of the back of my premises; it was suspended from a low wall. During that month I had also numerous *Sphinx convolvuli* brought to me.—H. A. Copp, 37, High Street, Ilfracombe: *February 12th*, 1886.

A HUNDRED NEW BRITISH SPECIES OF *DIPTERA*.

BY G. H. VERRALL, F.E.S.

(*Concluded from p.* 202).

58. *Tachydromia* (*Platypalpus*) *albiseta*, Pz.: at Brandon and Wicken Fen in July, also at Fawley in June.

59. *T. stigmatella*, Ztt.: this is distinct from *T. compta*, Walker, and I caught eight (6 ♂, 2 ♀) at Braemar on July 23rd, 1873.

60. *Campsicnemus pectinulatus*, Lw.: I caught eight (6 ♂, 2 ♀) of this little species at Brandon on July 10th, 1877. The males have almost unarmed legs, the middle femora bearing only an entire row of smallish inconspicuous bristles, and the middle tibiæ having about five small bristles behind on the basal half.

61. *Micromorphus albipes*, Ztt.: this tiny species puzzled me for years; it is common on seacoasts, and by its attitude in the sweeping net I was convinced it belonged to the *Dolichopodidæ*, but I could not succeed in naming it until assisted by Mik, who had formed the genus *Micromorphus* for it in 1878. Amongst other places I have caught it at Bognor, Wisbech and Aberlady, and also at Wicken Fen.

62. *Syrphus decorus*, Mg.: Mr. J. E. Fletcher caught a few specimens of this at Middleyard Copse, near Worcester, of which he gave me one caught on May 3rd, 1873. I believe all previous records of *S. decorus* as British relate to *S. auricollis*, Mg.

63. *S. lapponicus*, Ztt.: a female from Pitlochrie caught on June 29th, 1870, was named by Loew as certainly this species. Loew seemed clearly to distinguish this from *S. arcuatus* and *S. luniger*; unfortunately the latter is the only one I know well.

64. *Melanostoma dubia*, Ztt.: Loew is equally confident about the distinctness of this species, and names positively one female caught at Darenth on May 5th, 1868.

65. *Chilosia cynocephala*, Lw.: I rather doubtfully refer to this species a half-dozen specimens (5 ♂, 1 ♀) caught at various places within a few miles of Newmarket.

66. *Orthoneura brevicornis*, Lw.: Loew named as this species a specimen given me by the late Mr. D'Orville.

67. *Chrysogaster virescens*, Lw.: Loew also named as this a specimen I caught at Rannoch on June 26th, 1870, and I have since taken one specimen each at Loch Maree, Ivybridge and Lyndhurst.

68. *Melanophora atra*, Mcq.: this, which may be a variety of *M. roralis*, L., is common in Wicken Fen.

69. *Calliphora azurea*, Fln.: in this Magazine for December, 1881, I practically excluded this species from the British lists on the grounds that all British specimens were *C. grœnlandica*, Ztt.: I find, however, that true *C. azurea*, Fln., does occur rather rarely in England, as I have taken odd specimens at Boxhill, Abbots Wood in Sussex, Exeter, Barton, and even a pair in this house, one occurring in my own study just as I was working at the species; the male is very like *grœnlandica* but rather stouter, and the acrochætal bristles are distinct, those bristles being almost obsolete in *C. grœnlandica*; the females are very distinct, those of *C. grœnlandica* resembling the male, while those of *C. azurea* have the thorax with dull stripes, whence L. Dufour called the species *C. dispar*.

70. *Pyrellia cyanicolor*, Ztt.: the lovely bright purplish *Pyrellia* with three faint lines on the thorax and quite bare eyes seems to me to be *P. cyanicolor*, Ztt. It is not uncommon at Lynton and at Loch Maree and Rannoch.

71. *Hæmatobia stimulans*, Mg.: I do not consider this species or the next (both commonly known as *Stomoxys*) have ever been clearly identified as British. *H. stimulans* is very much like *Stomoxys calcitrans*, but the short proboscis and long palpi at once distinguish it, while in *H. stimulans* ♂ the eyes touch. I do not consider it rare, as since I first saw it at Rannoch I have taken it at various localities, amongst which (to show its distribution) I may mention Gairloch, Arran, Ivybridge, Lynton, Abbots Wood in Sussex, &c.

72. *H. irritans*, L.: this is the *H. serrata*, Dsv.; it is only half the size of the others, and very distinct. I used to catch specimens on a cow at Denmark Hill.

73. *Spilogaster trigonalis*, Mg.: this somewhat abnormal species (probably allied to *S. fuscata*) occurred freely at Lynton in June, 1884, and I have also taken it at Ivybridge, Teignmouth, Three Bridges, and last June even at Tongue.

74. *S. pertusa*, Mg.: closely allied to *S. consimilis*, Fln.; it is not very rare in the north, I took several at Braemar in 1873 and I have odd specimens from the Lake District and North Sutherland. I mention this species because Meade omits it, otherwise it has been reported British.

75. *Homalomyia Roserii*, Rnd.: this very distinct species occurred abundantly under *one* tree in a wood close to Three Bridges Station on July 31st, 1882; I had previously caught one at Rotherfield, also in Sussex, on September 8th, 1875. Unfortunately I have been unable to find the female.

76. *Anthomyia sylvestris*, Fln.: of this fine species I caught two males and one female at Aberlady on June 23rd, 1884; I believe it was abundant, but unfortunately I mistook it for *Hylemyia conica*. I suppose this would come in Meade's genus *Chortophila*, but at present I leave all *Phorbia* and *Chortophila* under *Anthomyia*.

77. *A. striolata*, Fln.: this and the following species are fairly described by Schiner, and I believe do not come under any of Meade's species, most of which I possess. *A. striolata* used to occur very freely in May on long grasses in a field which is now part of my garden; since this land has been joined to the garden the species still occurs, but less abundantly. I have also taken it at Darenth, Aberlady, and near Lewes. Dr. R. H. Meade informs me that it is his *Ch. trapezina*, Ztt.; it is, however, very distinct from a specimen I received from Kowarz named *Ch. trapezina*.

78. *A. discreta*, Mg.: very like the preceding species, but it is smaller, and the frons of the male is much wider; I have taken it at various places, amongst others at Barton, South Walsham, near Lewes, Aberdeen, and Tongue.

79. *A. vetula*, Ztt.: I am not well satisfied with the name of this species, but yet believe it correct; one important point is that Wahlberg mentions catching it abundantly on March 1st, when it was the only *Anthomyia* to be seen, while I caught mine abundantly in Widgham Wood near here on March 17th, 1884, when *A. muscaria* was the only other species about. It is a very small species, with a dark thorax, produced face (hence Zetterstedt's synonym *A. naso*), thin proboscis, short antennæ, and hind tibiæ with from 2 to 4 tiny erect bristles inside.

80. *Pegomyia diaphana*, W.: this conspicuous yellow *Anthomyia*, which at first glance resembles *Hyetodesia pallida*, has occurred rarely in my own garden and at other places within about two miles.

81. *Chirosia albitarsis*, Ztt.: this very remarkable species, the male of which has the base of the front tarsi whitish, occurred freely in June, 1884, at Loch Maree and at Tongue. The genus *Chirosia* would come amongst Meade's genera allied to *Cœnosia*, but is easily known by its complete anal vein (like *Mycophaga*) and its bare arista.

82. *Tetanocera lævifrons*, Lw.: amongst other specimens of this I note one taken at Plashet Park near Lewes on July 3rd, 1868, and another at Kew on July 17th, 1868.

83. *Elgiva rufa*, Pz.: I think Walker's *Tetanocera cucullaria*

(Ins. Brit. Dipt., ii, 166) is really *Elgiva rufa*, which is common in England, but true *E. cucullaria*, L., also occurs though more rarely; I possess it from Plashet Park near Lewes and from Woking.

84. *Psila villosula*, Mg.: on my study window on September 9th, 1884; probably common, but overlooked.

85. *Psilosoma Lefebvrii*, Ztt.: I have an old specimen which I do not know the history of, but which I have no doubt is British.

86. *Themira spinosa*, *n. sp.*

Near *T. minor*, Hal., and like that, small, entirely black-legged, and having the black costa extending to end of fourth vein; the front legs are however very different from any figure given by Van der Wulp in Tijds. Ent., vii, Tab. 8, and the end of the male abdomen bears pencils of bristles very like his *T. curvipes*, *l. c.*, Tab. 8, f. 11; the front (♂) tibiæ have a strong tubercle in front about the middle, on the lower edge of which is a good sized bristle, while just above the tubercle is another double bristle; the femora are extremely compressed about the middle and swollen after, on this swollen part above are about four strongish bristly hairs, and beneath about the middle is a strong bifid or double tooth, between which the tibial tubercle would lie when the legs are folded, near the base is a long thin bristle; the basal joint of the front tarsi is thin, except at end, and as long as the next three joints, the second and third being about equal; the hind tibiæ are very strongly twisted about the middle, almost as if broken, and are finely ciliated inside above the twist. The pleuræ are greyish above the middle coxæ. Of the European species with fasciculated male genitalia (*Cheligaster*, Mcq.), *T. Leachii*, Mg., *curvipes*, V. d. Wulp, and (*Enicita*) *annulipes*, Mcq., have the legs more or less reddish-yellow; of the black-legged species *T. putris*, L., is much larger than the others, leaving *T. superba*, Hal., *ciliata*, Stæg., and *pusilla*, Zett., to be distinguished from *T. spinosa*. I omit Desvoidy's two species (on which the genus was founded) as I think his *T. pilosa* is most likely only *T. putris*, L., rather than *T. superba*, Hal., as given by Walker (Ins. Brit. Dipt., ii, 212), and his *T. phantasma* may well be *T. Leachii*, Mg.; of the three left I possess a male of *T. superba*, Hal., and in that the hind tibiæ are comparatively simple, and the front legs much as Haliday describes them, which is quite distinct from, though allied to, *T. spinosa*; *T. ciliata*, Stæg, besides having presumably simple hind tibiæ, has "pleuris immaculatis—femoribus intermediis subtus apice, posticis latere interiori ciliatis;" *T. pusilla*, Ztt., is very insufficiently described, but probably has simple hind tibiæ and "femora antica subtus—denticulo—et setulis aliquot brevibus nigris."

I caught several specimens of this on the islands on Loch Maree, on June 9th, 1884, and one male at Tongue on June 18th, 1884. *T. minor*, Hal., occurred in company with it on Loch Maree, or at any rate was taken on the same day.

87. *Ptilonota centralis*, F.: one female at Darenth, May 5th, 1867.

88. *Pteropæctria palustris*, Mg.: several specimens caught on August 3rd, 1884, at Seaford answer well to this species, also some caught at Plashet Park near Lewes on August 4th, 1872, and one at Abbots Wood, Sussex, on July 12th, 1869. I am not at all satisfied with the distinctness of this species from *P. oscillans*, Mg.

89. *Spilographa hamifera*, Lw.: I have a female of this from Scotland, given me by Dr. Algernon Chapman.

90. *Trypeta jaceæ*, Dsv.: the true *T. jaceæ*, Dsv., with three pairs of bristles on the middle of the thorax, has never been distinguished as British; I caught several in Wicken Fen from July 3rd to 7th, 1875.

91. *Urophora quadrifasciata*, Mg: I caught this well-marked species on July 17th, 1870, near Warrengore Wood, Lewes; besides this I possess old specimens.

92. *Tephritis vespertina*, Lw.: this species (easily recognised by the pale spot at the tip of the wing being almost pushed out by the extent of the dark lattice-work) is not uncommon. I first distinguished it from specimens bred by Mr. W. A. Vice, in 1873, from *Hypochæris radicata* at Banchory, but I have caught it at Handcross in the middle of Sussex on April 12th, 1884, and at Lyndhurst, Fawley, and Rannoch, in June, at Barton in July, and at Esher in August.

93. *T. conura*, Lw.: this also was bred by Mr. Vice, in 1873, from *Carduus palustris*; I caught one specimen at Pitlochrie on July 1st, 1874.

94. *T. conjuncta*, Lw.: I have specimens (which I believe belong to this species) from Aberdeen, Rannoch, and Three Bridges. Besides this I have a still more typical specimen, the history of which I do not know.

95. *Urellia cometa*, Lw.: I caught one of this beautiful species at Lymington on June 24th, 1885.

96. *Meromyza læta*, Mg.: specimens from Lewes, Lewisham and Abbey Wood seem clearly to be this species.

97. *Notiphila nigricornis*, Stnh.: I have caught this at Lyndhurst on June 26th, 1872, and Bournemouth on July 14th, 1874.

98. *N. annulipes*, Stnh.: one specimen at Plashet Park near Lewes on August 4th, 1872.

99. *Ephydra breviventris*, Lw.: Loew named a specimen caught at Kew on August 4th, 1868, as this; he ought to know the distinctness of this from *E. micans*, which he named for me at the same time. I have not studied the *Ephydrinæ* enough to give any clear opinion myself.

100. *Limosina ferruginata*, Stnh.: this used to be abundant at Denmark Hill when I lived there.

In No. 28, *Dactylolabis Frauenfeldi*, line 3, the word "generally" should be "generically."

Sussex Lodge, Newmarket:
***December* 11*th*, 1885.**

Possible acclimatization of Papilio Erectheus, Don., in Europe.—This fine species could, probably, be easily acclimatized in the South of Europe. When we left Sydney on March 30th, 1885, I had a number of pupæ which emerged at different times on the way home, after undergoing great changes of temperature. From Sydney we proceeded through Torres Straits to Singapore, where we arrived on May 8th, and remained for about a month. Larvæ and pupæ taken in March and April would, in their natural course, produce butterflies in August or September. The temperature at Sydney at the end of March averaged 70° in the shade, and it would continue to get cooler up to the middle of June, which is about the coldest time of the year. At Singapore, in May, the thermometer ranged from 80° to 88°. From Singapore we went for a few days to Batavia, and from thence across the Indian ocean to Aden. The temperature during the passage was, comparatively speaking, cooler, but directly we passed through the straits of Bab-el-mandeb and entered the Red Sea the heat became intense, 89° to 94° in the shade, and not much cooler at night. At Malta, where we arrived on August 2nd and remained until the 7th, the heat was very great, indeed, it was said that they had not experienced such weather for nearly thirty years. On board ship the temperature was only recorded 79° to 93°, but I feel convinced that it must have been higher, for on shore it rose to 120° in the shade, and cases of sunstroke occurred daily, even among the Maltese. Notwithstanding the extreme heat the pupæ of *Erectheus* were subject to, the perfect insects did not appear much earlier than they would have done had they remained in their native country. The first emerged at sea between Java and Aden on June 19th, and the last at sea between Malta and Gibraltar on August 14th. Had we come direct home from Sydney, these butterflies would not have been born until after our arrival in England. There would be no difficulty in sending a supply of pupæ by mail steamer to Brindisi, where they would doubtless soon acclimatize themselves, as the larvæ feed almost exclusively upon various varieties of orange and lemon.—GERVASE F. MATHEW, H.M.S. "Penelope," Harwich: *February 12th*, 1886.

Grapholitha Penkleriana bred from Nut and Alder Catkins.—The green larva which last season I found abundantly in catkins of nut and alder, but was unable to rear (see Ent. Mo. Mag., vol. xxi, p. 203), has this season proved to be the above species. On the 2nd of November, 1884, I was in the neighbourhood of the nut plantation where I had obtained the larva the previous spring, and was surprised to find that the catkins of the nut were fully grown, and only required the warm sun of early spring to expand the anthers. The late and very fine autumn had had a similar effect also upon the catkins of the birch and alder, which, however, were not so forward as those of the nut. It was about the middle of March when I had previously found the larva, then quite small, which I now know to be *Penkleriana;* three months and a half later, but as I did not expect to be in the locality again for some time, and as the catkins were as forward as I had previously found them in March, I gathered a quantity, selecting those which had an abnormal bulge near the centre. There were a considerable number thus distorted, but when I got them home and examined them I was not able to detect anything which had caused the swelling, nor indeed could I find larvæ of any kind in the catkins. I put the catkins, much broken up by examination, into a bottle, and tied a piece of rag over the mouth. Towards the end of February there was a plentiful supply of larvæ crawling about in the inside of the bottle. The catkins were getting too dry to be eatable, having been in the bottle nearly four months. Being unable to obtain more catkins, as they had been out of flower for some weeks, I placed in the jar some nut buds, and was pleased to see that the larvæ ate into them in the same manner that I had found them eating the alder buds in the spring This cleared up the point that the larvæ had the same habits upon the nut as upon the alder, of feeding in the catkin when small, and resorting to the buds when the catkins had become too expanded to conceal them; or as they were then dead, for the withered remains of the catkins upon the trees were less fit for food than those which I had kept in the jar. At the beginning of April, I visited the locality where I had obtained the larvæ, thinking I might be able to get a fresh supply, and being anxious to ascertain whether in a state of nature they eat the nut buds. The latter point I was able to settle, as I found numbers of buds scooped out by the larvæ; I could not, however, find any larvæ, and all buds that had been eaten had grown considerably since their voracious visitor had left them, so it was evident that those I had in confinement in a cool and almost sunless room, had been more retarded in their growth than their comrades who, though exposed to the frost of winter, and often with their pendulous home encased in snow and ice, yet had the warmth of every hour's sunshine. On the 3rd of May I visited my alder locality, and found the larvæ almost full-fed within the buds. When attacking a fresh bud the habit of the larva is generally to make the hole near the foot of the bud, between the bud and the stem, so that when it had got within the bud, the hole by which it had entered was almost concealed. This method of operation had also the advantage, that the larvæ were less exposed while eating into the bud than if they had commenced in any other position. On the 25th of May I again searched these alders, and found the larvæ then full grown; the alder was almost fully in leaf, and the larvæ in search of fresh pabulum had evidently difficulty in finding unexpanded buds. Buds which had begun to open were webbed at the top slightly to keep them together, and in one instance I found a larva which had webbed together two young leaves, but in this as in all cases where leaves were attached to buds, the larvæ appeared only to eat the projecting ribs of the under-side of the leaf. Finding that the larvæ were to some extent forsaking the buds, I applied a walking stick rather vigorously to the branches, with the result of finding several larvæ in the umbrella held beneath. Two days after this I bred *G. Penkleriana* from the larvæ out of the nut catkins obtained in November, and on the 6th of July and following I bred it from the larvæ got in April and May in alder buds.

The larva, when young, is pale green, and tapers slightly and gradually from the third to the anal segment; head and second segment unusually large and shining black, having somewhat the appearance of a helmet; thoracic feet dark. As the larva approaches full growth, the third to sixth segments become slightly swollen, and the head and second segment are proportionately less and lose their blackness, being but very slightly darker than the rest of the body, with some brownish markings; spiracles very small, with a spot above and below very faintly darker; a few shining spots on anal segment; pupa light brown, with large wing-cases meeting to a projecting point in front; eye-case large, round, and conspicuously black-brown.—A. BALDING, Wisbech: *December 30th*, 1885.

Longevity of the larva of Nepticula apicella.—At the beginning of September

I noticed that all the aspen leaves on some young trees had, at the bases of their footstalks, the little commencing mines of this insect. How much earlier the larvæ really begin to feed is another matter, as it has to mine up the greater part of the leaf stalk before appearing in the leaf; and if it makes no better progress then than afterwards, it probably begins at the end of June or beginning of July. I never find any mines empty until the beginning of November, and very few then. The mine does not appear to be enlarged much until after the middle of October. Of course in November the aspen leaves have all been off some time and are quite brown, and many of them half rotted. The great bulk of the larvæ remain in the leaves until the middle of November (some even a month later) before entering the ground, so that they will have most likely from five to six months of larval life, as the summer-laid eggs of *Nepticulæ* hatch quickly.

There is another matter connected with this species to which, at Mr. Stainton's request, I wish to draw attention. In volume seven of the Nat. Hist. Tineina, the life-history, food-plant, and description of the larva of *N. apicella* are given; but, most unfortunately, the name, figure, description of imago, and the (Beckenham) locality, are those of *argyropeza*, a very different insect and quite distinct from *apicella*. I believe the larva of *N. argyropeza* is totally unknown both here and on the Continent. This error has caused great confusion in many cabinets; many specimens of *apicella* having been distributed, both by myself and others, as the much rarer *argyropeza*, before the error was detected. In all probability the great bulk of the captured, and all the bred examples extant, are *apicella*. It would be well if gentlemen having specimens of *argyropeza* in their cabinets, would rectify the error at once where it exists.—J. Sang, 33, Oxford Street, Darlington: *February*, 1886.

Nepticula argyropeza and apicella.—The error of confusing these two insects in the 7th volume of the Natural History of the *Tineina* was brought before me by Professor Fritzsche in some manuscript notes which he placed in my hands when we met at Stettin in September, 1863, at the Meeting of German Naturalists at that place. Immediately on my return home I wrote to Professor Fritzsche on the 2nd October, 1863, as follows:—

"Having safely reached home the day before yesterday, I write to-day about *Nepticula argyropeza*. To my great regret I must confess that in the last volume of the Natural History of the *Tineina* a serious error has occurred.

"The *larva* of my therein mentioned *argyropeza* belongs to my *apicella* (the *argyropeza, a*, Zeller), the *imago*, however, is really my *argyropeza!* The question now arises on what does the larva feed which produces my *argyropeza* with the costal spot nearer to the base than the dorsal spot?"

Professor Fritzsche replied to this November 5th, 1863:—

"Your note as to *argyropeza* has much interested me. Now that we have come to a clear understanding as to this species, one matter is still needed, that is, a *new* name for your *argyropeza* of vol. 7 of the N. H. *Tineina*, since, according to the rules of priority, Zeller's name of *argyropeza* (var. *a*) must be retained for *apicella*, Stainton. Please, therefore, to name your *argyropeza* afresh, and to let me know the new name, in order that I may introduce it in my short paper."

To this I replied, November 16th, 1863, suggesting the name of *subapicella* for the *argyropeza* noticed and figured in the *imago* state in the 7th vol. of the N. H. *Tineina.*

I have no reason to believe that Professor Fritzsche ever published his intended paper; in the mean time, the matter being in his hands, I deferred writing any notice on the subject myself: but now that Mr. Sang has kindly broken the ice for me, I am bound to say a few words.

Professor Fritzsche's suggestion that Zeller's name *argyropeza* should be retained for my *apicella,* and that my *argyropeza* should bear a new name, seems unfortnately to render the whole matter more complicated; perhaps, for the present, it were better to let that point rest, and look upon my proposed *subapicella* as a benevolent wish that has never been carried out.

In vol. 7 of the Natural History of the *Tineina,* pp. 188—195, "the larva," "the mode of life," and "the geographical distribution," apply to *apicella* with "the costal and dorsal spots exactly opposite;" "the imago" applies to *argyropeza* with "the costal spot anterior to the dorsal spot." The food and larva of this latter insect has yet to be ascertained. Can it feed on *Populus alba* (the white poplar)?—H. T. STAINTON, Mountsfield, Lewisham: *February 6th,* 1886.

The probable food of Gelechia vilella.—Mr. Warren's note as to his having bred *G. vilella* (unwittingly) 15 years ago has much interested me. This insect, first described by Zeller from his Sicilian captures in 1844, has since been found widely distributed in the Mediterranean region, and has occurred commonly in several localities in England. In Germany I believe it has not been found in any plenty, and only in a few localities. In a letter which I received from Herr Josef Mann in October, 1851, I find an intimation that the larva of *Gelechia vilella* feeds on stinging nettles, and is full fed at the beginning of April.

This observation, made at Brussa in the spring of 1851, seems never to have been published. Herr Mann's notes on his captures at Brussa in 1851 were not sent to press till eleven years afterwards, and the observation on the larva of *G. vilella* was not recorded in its proper place. Now, after an interval of 35 years! I place it before the public.

Herr Mann subsequently met with the insect in Corsica and in Sicily; in the former locality he says it was "flying amongst nettles in the evening," in the latter locality that he found "several on walls where nettles and *Parietaria* grew."—ID.: *January 25th,* 1886.

Crambus vigens, Butl., or Crambus fucatellus, Christ.—When I was looking over the Museum collection of *Crambi* a little time ago, I noticed one from Japan named *vigens,* Butl., which I at once recognised as being identical with *C. fucatellus,* Christ., and of which I have several specimens from Vladivostock in Southern Amoor.

There appears to have been a little confusion with the synonymy of this *Crambus,* arising, probably, from the fact that Christoph was not aware that his *fucatellus* had been previously described by Butler. It appears advisable, therefore, in order to prevent this being perpetuated, to put on record the history of this species.

In the Ann. & Mag. Nat. Hist. for December, 1879, p. 456, Butler describes this new *Crambus* from Japan under the name *vigens*, one specimen being then in the collection.

In the Moscow Bulletin for 1881, vol. lvi, Christoph, in his paper, Neue Lepidopteren des Amurgebietes, also describes this same species under the name of *fucatellus*, saying that he found it from the middle of July to the middle of August at Vladivostock and Askold.

Butler's name, therefore, has the priority, so that, hereafter, *fucatellus*, Christ., must sink as a synonym of *vigens*, Butler.

In Lord Walsingham's most valuable addition to the Museum, I also found a single poor specimen of this *Crambus*, to which Zeller had affixed a label, *vide porcellanellus*, which is quite a distinct species of Motschulsky's. Zeller's reference to this latter insect was probably caused by the fact that he did not know *porcellanellus*, and that the dark markings of *vigens* (which his specimen undoubtedly is) were in his one example very much obliterated.

It is unnecessary to describe *vigens* afresh, as any entomologist can readily refer to the original description; but I believe there is no description of Motschulsky's species in the English language, so that, to prevent any further confusion of these two *Crambi*, it may be well to describe it here.

C. porcellanellus, Motsch:—Anterior wings satiny-white, with a marginal black line from the apex to the third median veinlet, followed by three black dots below this vein. Posterior wings pale brownish-grey, darkest towards the costa, and gradually changing to pure white on the abdominal margin. The fringes are white throughout. The thorax is white, and the abdomen brownish-grey. Beneath the anterior wings are clouded with silvery-brown, excepting on the costal, exterior, and interior margins, and the posterior wings are white, becoming silvery-brownish towards the costa; body as above.

This description is taken from the specimen in the Museum collection from Hakodaté, standing next to *C. vigens*.—G. T. Baker, Augustus Road, Edgbaston: *February 3rd*, 1886.

Butalis fusco-cuprea bred.—This insect is given by Mr. Stainton, in the Manual, as "perhaps, not truly distinct" (from the preceding species, *senescens*). I have always maintained its distinctness, having for the past twenty years been taking it among *Lotus corniculatus* on our railway banks, where I invariably swept it from, or took it on, *that plant*. Of late years I had looked for the larva but was never able to find it. We have no thyme within many miles. I had the pleasure, at the end of last year, of having my opinion confirmed by Mr. Gregson having bred a fine series of it, from larvæ found in the Isle of Man feeding on *Lotus corniculatus*. There is no scarcity of thyme in that island, so that it can hardly be a case of compelled change of food. The larva spins a slight web up the stems of its food-plant. I have seen the specimens and they are truly *fusco-cuprea*, so that, perhaps, the doubt as to its specific rank may now be at an end.—J. Sang, 33, Oxford Street, Darlington: *February*, 1886.

Drepanopteryx phalænoides at Hastings.—Mr. E. A. Butler, formerly of Hastings, has communicated to me a wing of this species, mounted as a microscopic slide, with the following note: "I took the insect at Hastings many years ago, and impaled it on a 'spike.' It ultimately went to pieces, and I preserved only the wing, as I thought it a curious insect. It was named for me, some years ago, by the late F. Smith."

This forms an exception to the otherwise ascertained distribution of the insect in Britain (*cf. ante*, p. 140). There is no *prima facie* reason why the species should not occur over nearly the whole of this island. Still a suspicion suggests itself to the effect that the Hastings example *may* have resulted from an egg or pupa on an imported shrub. The mystery attached to this insect in connection with its occurrence in Britain, is why, having so conspicuous an appearance, it should be so little known.

The specimen here alluded to has been already recorded, and should have been included in Mr. Morton's notes at p. 140. The record is to be found in "The Natural History of Hastings and vicinity: first supplement (p. 35)," published in 1883.—R. McLachlan, Lewisham, London: *February 13th*, 1886.

On the occurrence of Orthezia cataphracta, Shaw, in Styria.—Some years ago, when my attention was occupied with the Flora of the calcareous mountains of North Stiermark, I found at the roots of a saxifrage (*Saxifraga aizoon*) an elegant cream-white insect, which afterwards proved to be *Orthezia cataphracta.* For assistance in its determination I am obliged to Dr. F. Löw of Vienna. I found it only at the roots of the said saxifrage, and to be able to see it the plant must be drawn out of the ground. Although the saxifrage abounds on our calcareous mountains, I can obtain the *Orthezia* up to this time only at the place where I found it at first. On the Krumpalpe *Saxifraga aizoon* occurs frequently, but I have found yearly at the roots of only a few plants a moderate number of the *Orthezia*, yet over a range of nearly 1300 met., which is the height of the mountain. Thus we find this insect, which lives in Greenland, Lapland, North England, Scotland and Ireland, to be also an inhabitant of our Alps. I may mention that I found the *Orthezia* specially on those plants of saxifrage which grew on the more humid and mossy ground. During the last four years I have visited the place at different times from April to December, and although I always found females, with and without marsupium, I have failed to obtain a male; my experiments in breeding have also had a negative result.

I hope to finish in a short time a detailed monograph of this anatomically interesting insect.—J. H. List, Zool. Institut, Graz: *February 5th*, 1886.

A species of Amara new to Britain.—Among a number of beetles sent me some time ago for determination by Mr. Robert Gillo, of Bath, I found a specimen of an *Amara* which at once struck me as being different from any of the hitherto recorded British species. I sent the specimen to the Rev. W. W. Fowler, and afterwards to Herr Reitter, the latter of whom returned it as certainly the *Amara montivaga*, of Sturm, a species which in the most recent European catalogue is given as an inhabitant of middle and northern Europe, but which has not, I think, been previously recorded from Britain. Mr. Gillo tells me he took the specimen near Bath, but does not remember the exact locality or the date of its capture. I have appended a description of the specimen, which is a male.

Amara montivaga, Sturm:—Oblong-oval, slightly convex; dark greenish-bronze, very shiny; antennæ pitchy, with the three basal joints yellow-red; thorax slightly broader at the base than the elytra, much narrowed in front, sides only slightly rounded; anterior angles obtuse, and not prominent; posterior angles right angles, but rounded at the apex; base of the thorax distinctly sinuate; basal impressions obsolete; elytra broad, parallel-sided for two-thirds of their length, faintly sinuate before the apex which is slightly produced; striæ simple, rather deeper behind; the marginal row of punctures interrupted in the middle; legs with the femora black; tibiæ reddish; tarsi brown. Length 3½ lines.

This species is at once recognised from all the other British *Amaræ* by its very broad thorax, the base of which is somewhat wider than the base of the elytra, by its somewhat depressed and parallel-sided form, and by its high polish. It is distinguished at once from *lunicollis*, *ovata*, and *similata*, its nearest allies in Britain, by the absence of any foveæ at the base of the thorax.—JOHN W. ELLIS, Brougham Terrace, Liverpool: *February 11th*, 1886.

[Dr. Ellis remarks that he sent the specimen to me; I returned it to him as probably *A. nitida*, Sturm, a species that is placed in the European lists immediately before *A. montivaga*; as Herr Reitter is acquainted with *A. montivaga*, his determination must be in all probability correct. It did not, however, appear to me possible that Dr. Ellis's insect could belong to that species, as Schaum (Naturgeschichte der Insect. Deutsch., vol. i, p. 524) lays particular stress upon the legs being entirely black; in the short Latin description of *A. montivaga*, he says, "pedibus totis nigris," and again in the German description, "die Beine sind ganz schwarz;" on the other hand, in describing *A. nitida*, he says, "femora black, tibiæ ferruginous, tarsi brown;" this it will be seen agrees exactly with Dr. Ellis's description; it is obvious, therefore, that either Schaum or Reitter must be wrong. I am rather inclined to think that the colour of the legs in the genus *Amara*, which some authors lay so much stress upon, is a very misleading character.—W. W. F.].

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, *21st January*, 1886: R. ADKIN, Esq., F.E.S., President, in the Chair.

Mr. Frohawk exhibited specimens of the curious ichneumon *Allysia manducator*, Gr., bred from the Coleopteron *Creophilus maxillosus*, L. Mr. Billups exhibited male and female specimens of *Sirex gigas*, L., belonging to the family *Siricidæ*, and remarked that the larvæ were very destructive to wood, more especially Fir plantations, and cited many instances to show the great rapacity and strength of the mandibles of these destructive creatures. This gentleman also exhibited specimens of the ichneumon *Rhyssa persuasoria*, which species was parasitic on the *Sirex*. Mr. Wellman exhibited some striking forms of *Xanthia aurago*. Mr. Dobson exhibited two specimens of *Acherontia Atropos*, the pupæ having been kept in a temperature of between 60° and 70°, and emerging respectively on the 2nd and 5th of January. Mr. Carrington exhibited a curious malformation of *Pieris rapæ*. Mr. South exhibited specimens of *Noctua castanea* (*neglecta*) from the New Forest, and two localities in Perthshire, and said those from the New Forest were gray with an ochreous tinge and were the true *neglecta*, whilst those from Perthshire were either gray with a reddish tinge or of a decided chestnut colour, the chestnut coloured specimens being the *castanea* of Esper; and the reddish tinged gray examples connecting the true named forms. Mr. Carrington said he had taken an bred both forms in Scotland, where he had found the larvæ feeding on sallow.

February 4th, 1886 : The President in the Chair.

Mr. Billups exhibited *Agapanthia lineaticollis*, Don., from Lincoln, al *Callidium variabile*, Linn., and *Strangalia 4-fasciata*, Linn., from Chobham. M Rose exhibited a variety of *Satyrus Hyperanthus*, L., in which the ring-spots of t upper-side, instead of being of the ordinary form, were identical with those usua confined to the under-sides. Mr. Wellman, a fine series of *Oporabia filigrammaria*, H.-S. Mr. J. T. Williams, a very beautiful banded variety of *Nyssia hispidaria*, Fb. Mr. Joy, subdiaphanous varieties of *Vanessa Io*, L., and *V. urticæ*, L., and Mr. South, short series of *Emmelesia albulata*, Schiff, from Switzerland, Kent, N. Devon, Dumbarton, Rannoch, and the Shetland Isles, and contributed some interesting notes on the different forms exhibited. The President having briefly referred to the suggested publication by the Society of a list of the fauna and flora of certain of the southern counties of England, Mr. J. T. Carrington proposed the following resolution :—"That as no complete list of the fauna and flora of the southern counties of England exists, this meeting resolves that the Council of the South London Entomological and Natural History Society be requested to organize the collection and publication of the material for such lists, under the auspices of this Society, of those counties which shall be agreed upon." Mr. Eley seconded the resolution which was then put to the meeting and carried unanimously.—H. W. Barker, W. A. Pearce, Hon. Secs.

Entomological Society of London, *February 3rd*, 1886 : R. McLachlan, Esq., F.R.S., President, in the Chair.

The President appointed Mr. F. DuCane Godman, Mr. Stainton, and Mr. J. J. Weir, Vice-Presidents for the year.

Dr. Livett, Lieut. Goodrich, Mr. Eustace Bankes, and Mr. F. Enock (formerly a subscriber), were elected ordinary Fellows, and Mons. E. L. Ragonot (ex-president of the Société Entomologique de France) a foreign Fellow.

Mr. C. O. Waterhouse exhibited female scales of *Coccidæ* of the genus *Eriopeltis*, possibly different from *E. festucæ* (*cf.* Ent. Mo. Mag., *ante* p. 168). Mr. E. A. Fitch remarked that *E. festucæ* had been recorded as British at a meeting of the Society held about thirty years ago.

Mr. Douglas sent for exhibition leaves of *Euonymus japonicus*, received from M. Lichtenstein, infested by *Chionaspis euonymi* (Comstock), first noticed in the United States, but which occurred in great numbers at Montpellier and Nîmes, and always destroyed the shrubs attacked by it. The number of ♂ scales was quite out of proportion to the ♀. M. Lichtenstein expressed a hope that the insect did not occur in Britain.

The President exhibited specimens of *Tettix australis*, Walker, received from Mr. A. S. Olliff of the Sydney Museum, who had captured them at the river Nepean (N.S.W.) ; Mr. Olliff stated that the insect was decidedly sub-aquatic ; he had found the insects not only on the surface of pools, but also eight or ten inches below the surface on the stems of water-plants, and they descended when approached. The President remarked on the interesting nature of this exhibition, and stated as his belief (from personal observation) that many *Acrydiidæ* and *Locustidæ* voluntarily took a bath by leaping on to the surface of streams, &c., swimming to the bank after a short time (if not meanwhile swallowed by fish).

Mr. W. F. Kirby exhibited, on behalf of Mr. Ralfe, certain specimens of *Lycæna Corydon*, &c., purchased by the latter at a recent sale, of a very extraordinary character, and suggestive of chemical action. Mr. Weir and others made some remarks on the specimens.

The Rev. W. W. Fowler exhibited the British example of *Harpalus calceatus*, Sturm, recorded *ante* pp. 172–174; also a series of British species of *Helophorus*, and made some remarks with regard to the extreme difficulties in synonymy affecting this genus. Furthermore he exhibited a specimen of *Apion Lemoroi*, Brisout; it was not uncommon on the French shores; the larvæ feed in the stems of *Polygonum aviculare*, and he was of opinion that it might be found on our own coast.

Mr. H. Goss read an analysis of Mons. Brongniart's recent work on "Les Insectes Fossiles des Terrains Primaires" (Rouen, 1885), and expounded that author's views on the classification of insects from geological data,

The Rev. W. W. Fowler read notes "On a small collection of *Languriidæ* from Assam, with descriptions of two new species."

Mr. Baly read a paper "On new genera and species of *Galerucidæ*," chiefly from the collections of Mr. A. R. Wallace.

Mr. J. Edwards communicated the first part of a synopsis of British *Cicadina*.

NOTE ON SOME BRITISH *COCCIDÆ* (No. 2).

BY J. W. DOUGLAS, F.E.S.

The attention given to the *Coccidæ* in this country, although extending over a long period, has been so desultory, intermittent, and imperfect as regards the number of species noticed, that no systematic English work on the subject exists, and much remains to be done, both in collecting and investigation, before the number of species inhabiting Britain can be known. My previous tentative "Note" (p. 157 *ante*) has brought to me several kind, instructive and encouraging letters; with the aid therein promised, and that of other entomologists who may be induced to collect and observe, an authentic list of British *Coccidæ*, accompanied by accounts of their varied economy and times of appearance, may be rendered possible. The last item is of importance, for much of success in obtaining the males depends upon the time of year when the scales are collected; and it would too often happen to the collector, that with such vague terms as "spring" or "summer," which for the most part are the only ones given as the season when the males are disclosed, he would find, if he got the scales, that the imagos had flown.

One correspondent suggests that I should not say "British

Coccidæ," because they are cosmopolitan, and wherever the plants that they affect grow, there the insects will be present. It seems, therefore, necessary to state that the term "British" is only employed in the usual zoological sense, not to indicate that the insects are exclusively British (the foreign origin of most of the names negatives this), but that the species inhabit or have been introduced into Britain. Although it is true that a comprehensive philosophical idea of species and generic groups can only be obtained by the study of forms from all parts of the earth, yet it must be remembered that the great majority of the collectors of insects in Britain are only able to give attention to those within their immediate reach, and it is to aid and encourage such, with reference to *Coccidæ*, that is now my primary object.

In a new field of research the acquisitions, if not absolutely new to science, are at any rate new to the collector, and the pleasure of their discovery is only second in degree to that of him who finds a species unknown before. Of this Kingsley speaks in his "Glaucus" as "the delight of finding a new species, of rescuing (as it seems to you) one more thought of the divine mind from Hela, and the realms of the unknown, unclassified, uncomprehended." There are many delights in store for those who will work up the *Coccidæ* with even a portion of the attention that has hitherto been given to *Lepidoptera* and *Coleoptera*.

Fortified with a competent knowledge of our native or introduced *Coccidæ*, any one who may have the opportunity will be better prepared to enter on the study of the whole cycle of the existence of these organisms; and the best modern guides will be found in the works of Signoret and Targioni-Tozzetti for Europe, Comstock for America, and Maskell for New Zealand.

For the information of enquirers as to what they are to look for, where the objects are to be found, and when, I subjoin a brief summary of the *prima facie* aspect in their *ultimate state* of such *scales* as are most likely to occur in this country, either in the open air or under glass, but this list is not exhausted; together with a list of the plants upon which they have been obtained, omitting those species mentioned in this or my preceding paper. The time of the year can, as a rule, be given only as spring or summer, for in most cases it has not been more precisely stated. The object should be to get the scales as soon as may be before the wonderfully formed males emerge; the greater interest attaches to this in that the male of many species is not known, and without this knowledge the natural history of the species is imperfect. The scale is formed by the moulting of the successive skins of the insect, combined with and augmented to a greater extent by the secretion by the insect of a waxy matter, which soon hardens into special forms; in some genera the scale is wholly formed of such secretion. The insect in all cases lives beneath the shield, the apterous female laying her eggs there and her body then drying up; the male, losing its mouth organization when it becomes a pupa, when it has attained its wings emerges backwards. The scales of the male, as a rule, are different in form and size to those of the female, as will appear in the following notes. Directions for rearing the males from the scales will be found p. 14, *ante.*

From the adult female scales many Hymenopterous parasites of different genera will be sure to appear, and may be obtained by securing the scales in the same way as those of the males. I have several reared from *Lecanium* which are very much at the service of any specialist.

SCALES.

DIASPINA.

Scale formed in part of moulted skins and in part of secretion by the insect.

Aspidiotus—circular or nearly so; exuviæ central or lateral in ♂, concealed, covered with a pellicle with a raised point in the middle.

Diaspis—♀ circular; ♂ long, carinated, larval skin at one end.

Chionaspis—♀ elongate, narrow in front where the larval skin is, greatly widened posteriorly; ♂ small, narrow, linear, elongate, mostly carinated.

Mytilaspis—long, narrow, mussel-form, alike in both sexes, larval skin anterior, ♂ smaller than ♀, with only one moult, ♀ with two moults.

Fiorinia—♀, larval skin anterior, the rest of the scale wide with almost parallel sides, and formed of secretion anteriorly ridged lengthwise; ♂ smaller, of similar form.

Asterodiaspis—♀, circular, lenticular, somewhat drawn up in the centre, the margin showing a filmy fringe, which is secreted by spinnerets on the margin of the insect; ♂ long-oval.

LECANINA.

Scales formed wholly of secretion, with a deep cleft in the posterior margin; form, ♀, gibbous, hemispherical, inverted boat-shaped, or sacs covered with cottony secretion; ♂, oval, plano-convex, thin and waxen.

Lecanium—♀, form various, more or less convex, hemispheric, or inverted boat-shaped; ♂, oval, slightly convex, waxen, delicate; imago in April.

Pulvinaria—♀, form like the preceding, but flatter, with a mass of cottony material containing the eggs protruding from beneath (ovisac); ♂ imago in April.

Signoretia—a complete sac of very thin felted pellicle; very small.

Eriopeltis—♀, an oval sac covered with woolly matter; ♂ in a waxen scale; imago in July.

Lichtensia—sac of cottony material, but with a skin beneath.

Physokermes—sac rounded, divided from beneath into two equal portions by a ventral skin.

Lecanopsis—case subterranean, without ovisac.

Aclerda—like the preceding, differing in the absence of legs and antennæ in the adult insect; ♂ unknown.

Fairmairia— ♀, formed as of two waxen scales united, each surmounted by a small elevation.

Ceroplastes— ♀, varying in form according to age, when adult it has six or more waxen plates round a central one; ♂ unknown.

COCCINA.

With or without scale-covering.

Kermes— ♀ globose, with a narrow base of attachment.

Gossyparia—covered with cottony matter, ultimately leaving only the disc of the scale visible.

Eriococcus—small white sac; ♂ smaller.

Acanthococcus—small white sac, very near to the preceding.

Rhizococcus—naked.

Dactylopius, *Coccus* and other genera of this division, being the insects commonly known as "Mealy Bugs," are without scales, and being also to a great extent exotic, are left out of this enumeration, but they may be the subject of future notes if desired.

PLANTS AFFECTED, AND THE *COCCIDÆ*.

Alder, *Lecanium gibber*, Dalm.
Ash, *Pulvinaria fraxini*, Licht.
Asperula cynanchina (roots), *Lecanopsis rhizophila*, Targ.
Bay, *Lecanium lauri*, Boisd.
Berberry, *Lecanium berberidis*, Schrk.
Bilberry (leaves), *Chionaspis vaccinii*, Bouché.
Birch, in cracks of (or under) last year's bark, *Aspidiotus betulæ*, Baer.
Box (leaves), *Mytilaspis buxi*, Bouché, *Eriococcus buxi*, Fonsc., in May.
Box, holly, ivy, *Aspidiotus hederæ*, Vallot.
Broom, *Aspidiotus genistæ*, Westw.
Butcher's broom and fig trees, *Ceroplastes rusci*, Lin.
Camellia, *Aonidia lauri*, Bouché.
Currant, *Pulvinaria ribesiæ*, Sign.
Dogwood, *Lecanium corni*, Bouché.
Elm, *Lecanium ulmi*, Lin.
Ferns, *Lecanium filicum*, Boisd.
Fescue grass, *Lecanopsis radicum graminis*, Baer.
Fig, *Mytilaspis ficus*, Sign.
Furze, *Aspidiotus ulicis*, Sign., *Lecanium genistæ*, Sign.
Grass roots, *Aclerda subterranea*, Sign., *Fairmairia bipartita*, Sign.
Guelder rose, *Lichtensia viburni*, Sign.
Hawthorn, *Aspid. oxyacanthæ*, Sign., *Lec. bituberculatum*, Targ.
Hornbeam, *Pulvinaria carpini*, Lin.
Horse-chestnut, *Aspid. hippocastani*, Sign.

Ivy, *Lecan. maculatum*, Sign.
Juniper, *Diaspis Carueli*, Targ., *D. juniperi*, Bouché.
Laurel, *Lecan. elongatum*, Sign.
Lime, *Aspid. tiliæ*, Sign., *Mytil. linearis*, Geoff.
Mistletoe, *Aspid. visci*, Schrk.
Oak, *Aspid. quercus*, Sign., *Lec. fuscum*, Geoff.
„ evergreen, *Aspid. ilicis*, Sign., *Chionaspis Planchoni*, Sign.
Oleander, *Aspid. nerii*, Bouché.
Peach, *Diaspis Leperii*, Sign., *Lec. rotundum*, Sign., *Lec. rugosum*, Sign.
Pear, *Diaspis ostreæformis*, Curt., ♂ imago in April.
Pine trees, *Leucaspis pini*, Hart., *L. Signoreti*, Targ., *Physokermes hemicryphus*, Dalm.
Poplar, *Aspid. spurcatus*, Sign., *Chionaspis populi*, Baer., *Pulvin. populi*, Sign., *P. tremulæ*, Sign.
Rose, *Diaspis rosæ*, Sandb.
Sallow, *Lec. capræa*, Lin., *Pulvin. salicis*, Bouché.
Spindle (*Euonymus europæus*), *Pulvin. euonymi*, Gour.
„ „ *japonicus*), *Chionaspis euonymi*, Comst.
Spruce fir, *Lec. abietis*, Geoff., *Mytil. abietis*, Schrk.
Walnut, *Mytil. juglandis*, Sign.
Wistaria, *Lec. wistariæ*, Sign.
Wood-rush (*Luzula*), *Signoretia luzulæ*, Sign.

I have used the nomenclature in general employment; much might be said about the wide-spread epidemic, of which there are here some examples, which induces the creation under abstract names of so-called genera (frequently doubtfully valid even to their authors) for species (often only a single one) which differ *inter se* in the smallest characters, thus burdening science quite unnecessarily with thousands of names which are a hindrance to the proficient and a source of dismay and embarrassment to the student. But the disorder, to call it by no harder name, seems incurable, and this is neither the time nor the place to discuss the subject.

Yet a word may be permitted on the way in which some generic names of Linné have been appropriated when his genera have been dismembered; I refer to *Coccus* and *Chermes*. Respecting the *Coccidæ* Westwood wrote (Mod. Class. Insects, ii, 447), "The type of this family (and for which, of course, the generic name *Coccus* must unquestionably be retained, instead of Illiger's name *Lecanium*) is the *Coccus ilicis*, Lin., a species which lives upon the *Quercus* or *Ilex coccifera*, and which was the insect which supplied the famous dye κοκκος of the Greeks, *Coccum* or *Coccus baphica* of the Romans (whence the origin of the terms *Coccus* and *Coccinum* given to cloth dyed with this production, whilst persons wearing this kind of cloth were said by the Romans to be *Coccinati*); the *Chermes* or *Kermes* of the Arabs, *Cremesi* or *Cocchi* of the Italians, and *Alkermes* of the Persians. Burmeister unites into one genus this and many others having the body of the female greatly swollen without any trace of limbs or articulations; and those which have the body flat, slender, and shield-like (*L. hesperidum*, &c.), with the limbs, antennæ and anal appendages distinct; the latter may retain the name of *Lecanium*, *C. ilicis* that of *Coccus*, and *C. cacti* that of *Pseudo-coccus*." This counsel has not been attended to, for when *ilicis* was separated from *Lecanium* it was made into two species, which were not referred to *Coccus* but to *Kermes*; *hesperidum* is still associated with its former companions as *Lecanium*, and *cacti* stands as the representative of *Coccus*, which nominates the family, all, as I think with Westwood, in contravention of the intention of the founder of the genus *Coccus*.

As to *Chermes*, under which name Linné placed a well-defined group of *Homoptera* (Faun. Suec., 1761), but did not until afterwards characterize the genus (Syst. Nat., 1767), Geoffroy, in the interval (Hist. abr. des Insectes, 1764), on the ground that Linné had misappropriated the old name *Chermes*, substituted *Psylla* for it, and his idea has been generally adopted; Linné, however, adhered to *Chermes* and cited *Psylla* as a synonym; Fabricius, Zetterstedt, and, later, Thomson, follow Linné in using *Chermes* instead of *Psylla*. *Chermes* is now made to do duty for a genus of *Coccidæ*, and still more curiously Buckton (Brit. Aphides, iv, 22) follows Passerini, Kaltenbach, Koch, &c., in employing the name for a genus of *Aphidæ*. This anomalous state of things Maskell (Trans. N. Zeal. Instit., xvii, 19, 1885) proposes to rectify by using the name *Kermaphis* for the Aphidians, leaving *Chermes* for the Coccids.

With respect to the reputed species of *Lecanium*, some scales ♂ & ♀ found on different trees are so extremely similar to each other that I long entertained an unverified suspicion that they really belonged to but one polyphagous species only, and I have just learned that Foerster in his overlooked article "Ueber Schildläuse" in the "Verhandl. des naturhist. Vereins der preuss. Rheinlande," 1851, viii, p. 551, united *L. coryli*, Lin., *tiliæ*, Lin., *betulæ*, Lin., and *carpini*, Lin., as one species under the name *L. vagabundum*. This deserves further investigation in the light of recent microscopic research; at present I am not in a position to say anything decisive. The same kind of enquiry may advantageously be made with other reputed species, and the removal of gravid females from one kind of tree and fixing them on another might also be tried and the result watched.

I have lately obtained—

Aspidiotus camelliæ, Boisd., on buds and bracts of Camellia, from Mr. Parfitt, Exeter; new to us.

A. limonii, Sign., on imported lemons, ♂ and ♀; ♂ imago dead under a few scales.

Chionaspis alni, Sign., on alder, at Lewisham; new to us.

Chionaspis euonymi, Comst. M. Lichtenstein sends this from Montpellier, where, during the last few years, it has become so abundant on the leaves of *Euonymus japonicus*, that, as it kills the shrub, it threatens to render the cultivation of this fine hardy evergreen impossible. It is likely enough that it will be found in Britain where the shrub is now common (*c.f.* Proc. Ent. Soc. Lond., Feb. 3rd).

C. salicis, Linn. I find this on sallows at Lee, and Mr. Parfitt finds it very common at Exeter. I think with Prof. Comstock that it is identcal with *C. fraxini*, Sign.

Mytilaspis pomorum, Bouché.

Besides that on apple and pear trees, I find a scale very similar to if not identical with it on plum trees and dogwood, which have already been taken to be the same species; I also find scales, apparently the same, on blackthorn, whitethorn and currant bushes, but a microscopical examination is requisite to determine the identity or difference. Comstock enumerates 19 trees on which he finds scales ostensibly of one species (*pomorum*), but as he sagaciously observes, "In nearly each if not in every case the opinion respecting the specific identity of the forms occurring on other plants with that upon the apple has been based upon the characters presented by the scale. These characters being insufficient to distinguish this species from closely allied forms, it is very desirable to confirm these observations" (Report, 1880, p. 326). There is, then, good work to be done here, but only with a high microscopic power.

Mytilaspis flavescens, Targ.-Tozz., Sign.

Upon some lemons imported from Sicily I found, in August, some yellowish-brown scales of a *Mytilaspis* which agree exactly with the description of this species. They were full of eggs. In December, on lemons and oranges, I found a quantity of female scales of the same species, but empty, and surrounded by young ones varying in size from a mere speck to up to half the length of the mother.

This is certainly the species described and excellently figured in all its stages by Mr. R. Beck in the "Transactions of the Microscopical Society of London," vol. ix, N.S., p. 47, pl. v (1861), under the title of "The Coccus found upon oranges." He found his examples on imported oranges, and also on plants in this country.

I have no doubt also that this is the *Mytilaspis citricola* described and figured by Comstock in his "Report," 1880, p. 321, pl. vii, fig. 1, pl. xviii, fig. 3, and pl. xx, fig. 3. He says it is one of the most common species of scale-insects found on citrus trees in Florida, and that he has frequently found it on oranges imported from Europe. It also occurs in Louisiana, and was imported into America in 1855 on lemons sent from Bermuda.

Mytilaspis ulicis.

Under this name I wish to record provisionally, in order that it may not be lost sight of, a *Mytilaspis* that does not appear to have been hitherto noticed. It may prove to be an undescribed species, but only an examination of the spinnerets and abdominal fringe, such as is not now practicable for me, can decide if it be distinct. On December 14th, on furze bushes (*Ulex europæus*) growing on the most open and exposed part of Blackheath, far from any other shrub or any tree, I found the scales not uncommon. They were on the young terminal shoots, not on the bark, but closely fitted into the longitudinal grooves of the spines or the narrow hollow of the leaflet at their base, and being of the exact width of their site, were not easy to detect. They are dark castaneous, straight, not widened posteriorly, 1½ lines in length. This is the normal form and position, here and there, however, at the wider part of a spine at its base was a scale somewhat broader behind. On one spine are two scales that had begun at a level point, and for as far as they were only as wide as the larval scale they are side by side, but then one of them having occupied the width of the groove, the other had no resource left but to cross the scale of its rival, which it did, and maintained its position. All were females, and the bodies were full of large white eggs.

Fiorinia camellicola, Comst. Mr. Parfitt finds this on camellias at Exeter; new to us.

Asterodiaspis quercicola.

In his "Essai," at p. 167, Signoret placed *Aspidiotus quercicola*, Bouché, in the genus *Asterolecanium* (p. 160, *ante*), but having subsequently obtained the perfect male, he found more of the character of a Diaspid than a Lecanid (which, however, Comstock doubts, Report, 1883), and he made the species the type of the new genus *Asterodiaspis* (p. 444).

During the latter part of November I found on oaks at Lee and Eltham ♀ scales of the last brood, but by lapse of time and by exposure the yellowish colour has become tarnished. At one side of a batch of scales there are some very small round ones of a new brood, but I see none of the male, which is stated to be of a long-oval form, 1 mm. in length, of a clear brilliant yellow, with a weak median carina, and a fringe similar to that of the female. Mr. Parfitt finds the ♀ scales at Exeter, but says they are scarce.

8, Beaufort Gardens, Lewisham:
January 14*th*, 1886.

NOTES ON SOME *LEPIDOPTERA* FROM ALGERIA.

BY GEORGE T. BAKER, F.E.S.

In continuation of my former notes on Algerian *Lepidoptera*, vol. xxi, pp. 241 and 268, the following list of insects, taken there in the first half of the year 1884, may not be devoid of interest. The arrangement is that of Staudinger's catalogue.

Papilio Podalirius, v. *Latteri*, not uncommon at Guelma in June. All my specimens appear to be an intermediate form between v. *Feisthamelii* and v. *Latteri*, they are, however, nearer the latter, and must therefore be placed under that variety.

Pieris Daplidice, L., plentiful in February around Lambessa.

Anthocharis Belemia, Esp.: this appeared on the wing at the end of February, and continued moderately common at Lambessa till towards the end of March; v. *Glauce*, Hb., common at Guelma in May; *Belia*, Cr., Lambessa, March, in May, its variety, *Ausonia* was not rare at Guelma; v. *Levaillantii*, Lucas: the first specimen was captured on the 10th of February, and it continued on the wing till near the middle of March in the neighbourhood of Lambessa. It is strange how rare the ♀ is, only a single specimen was taken to about two or three dozen ♂. All my Lambessa specimens are small and dark, which can probably be accounted for by being taken high up in the mountains.

Donzel's name *Charlonia* should take priority to that of Lucas, as the species described by him, and discovered near Msila (about 75 miles west of Lambessa, and rather nearer the Mediterranean), cannot be the same as *Penia*, Frr., which Dr. Staudinger catalogues as *Charlonia*. Oberthür is, without doubt, correct in saying, see "Faune des Lépidoptères d'Algérie," p. 17, that *Penia* is a variety of *Charlonia*, *i. e.*, *Levaillantii*, of Lucas: *Penia* being white, only just tinged with yellow, whereas *Charlonia* is of a decided and rather bright yellow colour, the fringes of *Charlonia* are also rosy, but are almost white in *Penia*.

Another interesting variety was discovered last year in Mesopotamia, and named by Staudinger *mesopotamica*, a pair of which that gentleman kindly sent me, and as they are very similar to *Levaillantii*, it may be interesting to describe them.

Fore-wings sulphur-yellow, rather brighter than in *Levaillantii*, discoidal spot dark brown, larger than in Donzel's species, apical patch also brown, extending further down the posterior margin than in that species, and having scarcely a trace of the transverse spotted stripe. In *Levaillantii* both the discoidal spot and the apical patch are almost black. Hind-wings sulphur-yellow, slightly greenish on account of the dark under-side appearing through.

Beneath, the fore-wings are yellowish-white, with the dark markings of the upper surface appearing through, but the discoidal spot is not a distinct black spot as in *Levaillantii*. Hind-wings dark grey, densely irrorated with greenish, with three distinct whitish spots and one or two very indistinct ones. The irrorations are not so dark and are browner than in *Levaillantii*.

The ♀ is much larger than the ♂, measuring about 41 mm. to about 36 mm., it also has the discoidal and apical patches of the anterior-wings larger and blacker, and the latter has a distinct yellow spot in front of the apex, which is the commencement of a less indistinct transverse band. The small spots on the under-side of the hind-wings are also larger and more distinct.

The only ♀ *Levaillantii* I have is scarcely larger than the ♂, but it will be seen that the two species are extremely nearly allied.

Anthocharis Eupheno, L., common at Lambessa in April: I have also one remarkably small variety taken at Guelma in May.

Colias Edusa, F., common during February around Lambessa, and in June v. *Helice* was plentiful at Guelma.

Rhodocera farinosa, L., Guelma, June, rare.

Thecla ilicis, v. *æsculi*, Hb., Guelma, June, and its aberration, *cerri*, occurred not unfrequently at Souk Harras.

Thestor Ballus appeared on the wing at Lambessa towards the end of February, and was common during the following month; *mauritanicus*, Lucas, plentiful at Lambessa for about the first three weeks of February.

Polyommatus phlæas, L., common at Lambessa in February, as was also its v. *Eleus* at Guelma in June.

Cigaritis Massinissa, Lucas, Guelma, May, rare.

Lycæna bœtica, L., not rare at Souk Harras in June; *Theophrastus*, F., Souk Harras, June; *Abencerragus*, Pierret, Lambessa, March, common: it would be quite impossible to distinguish some of my specimens from *Baton*, v. *Panoptes*, if they were unlabelled; *Astrarche*, Bgstr.; Guelma, May, all of the usual Algerian form, *i. e.*, with the red spotted border very bright and broad; *Icarus*, v. *Cælina*, Const.: this variety replaces *Icarus* in Algeria, and was abundant at Guelma in June; *Argiolus*, L., Guelma, June: the only specimen taken comes very near the var. *hypoleuca*, the spots on the under-side being almost obliterated; *melanops*, Bdv., rare at Lambessa in March, one v. *Marchandii* was also taken at the same place; *Iolas*, Och., one specimen, of the usual Algerian form, viz., with the ocelli beneath to a minimum, was taken at Guelma in May.

Vanessa polychloros, L., plentiful during the whole of February around Lambessa, v. *saturata* occurred at Guelma in May.

Melitæa Phœbe, L., one specimen was taken at Lambessa in April, which is a link between *Phœbe* and Oberthür's variety *punica*.

Satyrus Alcyone, Schiff., Guelma, May, rare.

Pararge Megæra, v. *Lyssa*, Guelma, June, not uncommon; *Ægeria*, L., rare at Guelma in June, this was of the usual South European form.

Epinephele janiroides, Guelma, June.; *Pasiphaë*, v. *Philippina*, Guelma, June, common.

Cœnonympha Pamphilus, v. *Lyllus*, Guelma, July.

Spilothyrus althææ, v. *bæticus*, Guelma, June, rare.

Syrichthus Alveus, v. *onopordi*, Lambessa, March; *Sao*, v. *ali*, Guelma, June.

Sesia albiventris, Ld., one specimen taken at Guelma in June; *doryliformis*, O., Guelma, June, rare.

Paranthrene tineiformis, Esp., Guelma, June.

Chimæra nana, Guelma, July, rare.

Ino certana, Lucas, Guelma, May.

Zygæna Favonia, F., Guelma, June; *algira*, Dup., plentiful at Guelma in June.

Naclia punctata, v. *servula*, one specimen from Guelma in June.

Lithosia marcida, Mn., Guelma, June.

Deiopeia pulchella, L., Guelma, June.

Ocnogyna bætica, Rambr.: nests of the young larvæ were common in the mountains around Lambessa in February, in the lower valleys the larvæ were at least half-fed up at the same time: they are polyphagous and easily reared; the perfect insect begins to appear towards the end of October.

Endagria Ulula, ab. algeriensis, one specimen taken at Guelma in June.

Orgyia trigotephras, B., rare at Guelma in June: the specimens taken are of this species, and not *anceps,* Obr., as is evidenced by the darker colour, and the smaller crescent-shaped white mark at the interior angle of the fore-wings.

Caradrina, v. *sebdonensis,* Guelma, June.

Cleophana bætica, Rambr., Lambessa, April, rare.

Plusia ni, Hb., Guelma, June, rare.

Thalpochares ostrina, Hb., Guelma, May; v. *æstivalis,* Gn., Guelma, June; v. *carthami,* H.-S., Guelma, July; v. *Numida,* Lucas, Guelma, July, rare.

Metoponia vespertalis, Hb., Guelma, June, rare.

Metoptria monogramma, Hb., Guelma and Souk Harras, June, not rare.

Zethes insularis, Ramb., Guelma, June: this, I believe, has not been taken in Algeria before.

Pseudoterpna coronillaria, Hb., Guelma, June, rare.

Acidalia vittaria, Hb., Guelma, June; *numidaria,* Lucas, Guelma, May; *litigiosaria,* Bdv., Guelma, June, rare; *manicaria,* H.-S.: this is, I believe, also new to Algeria, it was taken at Guelma in June.

Acidalia inesata, Mill.: this species, of which one specimen was taken at Guelma in June, is, I believe, new to Algeria; *carnearia,* Mn., Guelma, June, not uncommon, new to Algeria; *incarnaria,* H.-S., Guelma, June; *ostrinaria,* Hb., Guelma, June; *elongaria,* Rambr., Guelma, June.

Zonosoma pupillaria, v. *badiaria,* Guelma, June.

Pellonia sicanaria, L., Guelma, June.

Pachycnemia hippocastanaria, Hb., Guelma, June.

Gnophos mucidaria, Hb., one specimen occurred at Lambessa in March, it is, I believe, new to Algeria; *asperaria,* v. *pityata,* Rambr., Guelma, June.

Fidonia fasciolaria, Hufn., Lambessa, March, Guelma, June.

Athroolopha chrysitaria, H., Lambessa, April: I have one specimen of the pale variety, figured by Lucas, and another, which must be a link very near to the var. *kabylaria,* Oberthür.

Eurranthis plumistraria, Vill., common at Lambessa in April; some pretty orange-striped varieties were also not rare.

Halia vincularia, Hb., Guelma, June, rare; *semicanaria,* Frr., Guelma, June.

Ligia Jourdanaria, Vill.: this species, which was plentiful at Lambessa in April, has not, I believe, been taken before in Algeria.

Sterrha sacraria, L., not rare at Guelma in June: I have one curious specimen with the wings of a much dingier yellow, and the transverse stripe brown, and much obliterated; *ab. sanguinaria*, Guelma, June.

Cidaria bilineata, v. *testaceolata*, Stgr., Guelma, June.

Eupithecia breviculata, Guelma, June.

Among the *Pyralidina*, the following are most worthy of notice:

Cledeobia interjunctalis, Gn., Guelma, May.

Botys polygonalis, v. *meridionalis* and *institalis*, both taken at Guelma in June.

Eurycreon nudalis, Hb., Guelma, June.

Cornifrons ulceratalis, Ld., Lambessa, April: this is, I believe, a new locality for this insect.

Metasia suppandalis, Hb., and *adelalis*, Gn., both of these were taken at Guelma in June, and, I believe, are new to Algeria.

Crambus alpinellus, Hb., common at Guelma in June: this is, I think, also new to Algeria.

I take this opportunity of making a correction in my former paper on Algerian *Lepidoptera*. In my description of *Bombyx loti*, var. *algeriensis*, see page 242 of the last volume, I stated that the ♀ had no small central whitish spot in the anterior-wings. I have since received another ♀ specimen which has this spot (as in the parent species); it is, however, rather indistinct.

Augustus Road, Edgbaston:
December 14*th*, 1885.

SOME CAPTURES OF *LEPIDOPTERA* IN 1885, WITH REMARKS.

BY WILLIAM WARREN.

Though my collecting during the season of 1885 was somewhat desultory, yet as I had the good fortune to meet with two or three rarities, with which I hope to become better acquainted another year a short account of my principal captures may prove interesting.

To prevent confusion, I will enumerate separately the species met with in the Eastern Counties, taking Cambridge as the centre, and those caught in the London district.

My first capture of any importance was on April 26th, at Saffron Walden, when after beating up and down a lane for a whole afternoon without dislodging anything better than a stray *S. Steinkellneriana*, just before dusk I secured a fine fresh ♀ *H. pauperana*. Beaten out of a rose-bush, it flitted quickly along close to the ground for a few yards, and settled beneath a privet leaf, off which it allowed itself to be boxed without further trouble. This specimen was evidently just out. The margins of the basal patch and central fascia were marked by slightly raised scales, as in some of the *Peroneæ*. I spent two more afternoons after this without seeing another *pauperana:* and though I have searched regularly every spring for the last six years, I have never been lucky enough to observe a single specimen on the wing.

Larvæ of *E. nigricostana*, *A. fuligana*, and *E. rupicola*, were as abundant as usual in their favourite haunts. It was while collecting the larvæ of this last near Cambridge in April, that I found in the lower part of a hollow stem of *Eupatorium* a single *Elachista* pupa, which presently produced a ♂ imago, that, as far as I can ascertain (and both Mr. Stainton and Lord Walsingham have seen my insect), is distinct from any hitherto described species. A single specimen, however, is hardly sufficient on which to form a species, but further search this spring will possibly enable me to detect the larvæ, and throw light on the matter, by breeding the insect in large numbers and both sexes.

In June, the usual ground in the Fen districts yielded *B. argentula* and *A. Schrebersiana* in undiminished numbers, while in one spot *A. Sulzella* and *M. Mansuetella* were not uncommon. In Wicken Fen the larvæ of *Gel. morosa* and *subdecurtella* were both abundant in the tops of the yellow and red loose-strifes respectively, but the mines of *Grac. imperialella* in both broods, were this year conspicuous only by their absence.

From a batch of two dozen pupæ of *G. quercifolia*, I bred one imago, which, though unfortunately a cripple, is remarkable by reason of its colour, which is almost exactly the same as that of its smaller, but rarer relative, *ilicifolia*. While on the subject of the Fens, it may not be amiss to record that this season the local Pyralid, *Nascia cilialis* was more than usually abundant, and that a single example of *H. palustris*, a somewhat damaged ♂, came to the lamp of one of the local collectors.

At Tuddenham, in Suffolk, *A. sulphuralis*, *A. rubricata*, and *O. lætus* occurred in profusion, both in June, when I was there, and throughout the summer, while here and there *H. dipsacea* and *H. luctuosa* showed themselves in smaller numbers. At Brandon, about the middle of June, I had the good luck to beat out of a spruce fir a fine ♀ *C. Ochsenheimeriana*, previously, I believe, only recorded from Lord Walsingham's fir plantations at Merton, where it is said to frequent *Abies cephalonica*. Continued searching produced a few more, all more or less damaged. The end of May I have since learned is the right time for getting this *Tortrix* in its perfection.

The end of July and beginning of August were spent in looking for *B. impar*, of which I took a larger number than usual. I think I should be within the mark if I computed the number of specimens taken during the season as at least a hundred, probably twice as many as the captures of all previous years put together. I am inclined to think that this was simply owing to the fact that the search for the species was carried on by a larger number of collectors, and with greater emulation than hitherto, rather than to any real increase in the numbers of the insect. At the beginning of August, also *Nonagria neurica* was abundant in its reedy haunts; near Cambridge I have never taken it before August, but in the Norfolk Fens I am told it is out during the second half of July. About the same period I collected a few larvæ of *P. margaritalis*, and a considerable number of those of *Eup. sodaliana* feeding in the unripe berries of buckthorn. Early in September, larvæ of *A. strigosa* and *A. sinuata* were to be found, but neither so commonly as in former years.

One other good species remains to be recorded, *H. Servillana*, of which I bred seven fine specimens from larvæ collected in April at Monk's Wood, in Hunts. With regard to this species, it may be useful to draw attention to the fact, that two out of every three sallow twigs cut in spring will have been robbed of their tenants by the birds during the winter months.

The rest of my collecting has been, as I said before, chiefly in the neighbourhood of London, and I will now briefly enumerate the most noteworthy captures therein.

Early in February, while looking for *N. hispidaria* in Richmond Park, I found a ♂ *A. prodromaria*, which exhibited a curious instance of malformation. The whole of the abdomen was orange-coloured, and on closer examination was found to be entirely enveloped in a thin membranous integument without any opening at the anus, but so transparent that the parts of the male organs could be clearly discerned through it, imbedded in a sort of waxy, yellow substance. Unfortunately, when placed on the setting board, instead of retaining its former appearance and shape as it dried, the abdomen shrank and withered away into a shapeless brown mass, resembling more than anything else a shrivelled pupa-case. I do not remember to have ever heard of a like occurrence, and should be glad to hear of the probable explanation.

In April, hearing from Mr. Fletcher of Worthing, that, acting on the suggestion of Mr. Stainton, he had succeeded in finding larvæ of *Chaul. insecurellus* on *Thesium humifusum*, I visited a locality on the downs beyond Sanderstead, where the previous year I had taken an imago, and managed to collect about a dozen larvæ and pupæ, from which five moths emerged. I was not able to look for the second brood at the right time, but at the end of October I caught a ♀ in the same spot, which was probably intending to hibernate. The month of July yielded the usual Micros in the Parks and suburbs, such as *M. pinguis*, *Gel. pinguinella*, *albiceps*, and *gerronella*, *T. caprimulgella*, *Lav.*, *Stephensi*, with other commoner species. On a Suburban Railway Embankment, to which I was introduced by the kindness of a friend, I secured *Col. Fabriciella*, *Eup. dubitana*, and *implicitana*, *Bucc. cristatella*, and *Antithesia sellana ;* of which last species I watched a ♀ deposit a single egg on the upper-side of a leaf of *Plantago lanceolata*. From my friend's garden I became possessed of two examples of *Gel. nanella*, and a third turned up on the trunk of a poplar-tree on Wandsworth Common, whither it must have been blown from some neighbouring garden. At the end of this month and the beginning of August, I had the pleasure of netting, near Sanderstead, a few beautiful specimens of *Eup. flaviciliana*, but as I was late, the majority were worn. Can any one tell me if this species, like *Degreyana*, is double-brooded ?

A single imago of *Lith. scabiosella*, bred from about 50 mines, collected in October—all the rest of which were either empty or produced ichneumons—and a single *Lith. comparella*, bred from a mine from Ripley, in Surrey, which both emerged in *November*, were very acceptable.

A day at Boxhill in this last month with the snow on the ground, produced about 50 *Z. hepariella*, and a solitary, but equally welcome, *Grac. stramineella*. About a month earlier, in Headley Lane, I was enabled, again following a hint received from Mr. Fletcher, to detect the larvæ of a *Nepticula* in the radical leaves of *Prunella vulgaris*, which there is little doubt will produce the hitherto little known and almost unrecognised *Nep. headleyella*, of which, until last summer, when Mr. Fletcher captured several in the South of England, I believe there existed only the two original specimens caught by Mr. Stainton many years ago in the lane after which he named the species.

Lastly, I must not forget to mention the capture at Shoeburyness, on *Artemisia maritima* of four larvæ, three of which I am glad to say have pupated safely, of a "Pug," which I have strong hopes will produce *Eup. innotata ;* at all events, the larvæ answer precisely to the published description of that insect. If I should prove right in my surmise, I shall have no reason to grumble at the results of 1885.

Merton Cottage, Cambridge:
January 12th, 1886.

DESCRIPTION OF A NEW *BOMBYX* ALLIED TO *ARCTIA CAJA.*

BY DR. STAUDINGER.

ARCTIA CAJULA, Stgr., *n. sp.*

I received this pretty new species from my friend Mr. H. J. Elwes, and proposed at first to have named it after him, but as it very much resembles a small *Arctia caja*, I hope he will not object to my naming it *cajula*.

Mr. Elwes informed me that it was caught at a great elevation, 13,000 to 14,000 feet, in the North West Himalaya, in the Tibetan valley of Laboul, many days' journey from any inhabited place. A number of males were taken, but only one female which, to my regret, is not before me whilst writing this description.

Arctia cajula is only a little larger than the well-known European *Arctia aulica*, L. The average length of the fore-wing is 20 mm., whereas in *A. caja* the average length is 30 mm., and in the variety *Wiskotti*, Stgr., from Asia Minor, even 40 mm. *Cajula* has very much the coloration and markings of typical specimens of *caja*. It is well known that *Arctia caja* is apt to show most curious aberrations and varieties, whereas *cajula* appears to vary but very little.

The anterior wings of *cajula* do not show as much of the white markings as in *caja*; sometimes there are only from three to four irregular white spots near the base, a larger white spot in the middle of the costa, and an irregular narrow white fascia before the hinder margin. These latter marks in many specimens form an X-like marking as in *caja*.

On the under-side the basal portion of the anterior wings is more or less red, with some two or three black spots.

The posterior wings are of a brighter red than in *caja;* they show near the base two small black spots one above the other, there is a larger spot at the end of the median cell, and three large black spots, generally united so as to form a fascia, before the hind margin. Before the reddish-yellow cilia is a narrow black sub-marginal line, sometimes dissolved into separate spots; this never occurs in *caja*, where only sometimes the upper part of the cilia themselves are black.

On the under-side of the posterior wings the colouring is duller, and the two small black basal spots are here confluent, forming a slender fascia.

The antennæ are black, and proportionately with longer pectinations than the white antennæ of *caja*. The head and thorax are smoky-brown; the palpi sometimes rather reddish beneath. The pro-thorax is edged with reddish-white hairs, and also faintly divided with similar hairs in the middle. On the meso-thorax may be perceived two faint reddish stripes which never occur in *caja*.

The tibiæ, especially the anterior pair, bear reddish hairs; the tarsi are spotted with yellow. The red abdomen is broadly ringed with black as in *caja*.

Cajula cannot be a dwarf local form of *caja* owing to the black antennæ, the reddish stripes on the thorax, and the black sub-marginal line of the posterior wings, &c. But on the other hand it is probably a local form of a species found on high mountains in Central Asia (Russian Turkestan), by Herr Grumm Grschimailo, for which he has proposed the name of *Arctia Alpherakii*.

This form is even smaller with darker brown-black anterior wings, and shows more and broader white markings than *cajula*. In the specimen of *Alpherakii* before me, the posterior wings have only the three large spots before the hind margin, which are in it not confluent. Otherwise the markings of the anterior wings are similar, the antennæ are also dark, and the thorax also bears the two reddish lines.

I am certainly of opinion that a larger number of specimens, especially from different localities, would enable us to unite *Arctia cajula* with *Alpherakii*.

Blasewitz, Dresden:
January 11*th*, 1886.

ON THE INCONSTANCY OF A GENERIC CHARACTER IN *NEPHERONIA ARABICA*.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

In the separation of species of *Lepidoptera* into genera, it has been long admitted that neuration is an item of primary importance, and the presence or absence of a vein in either front or hind wings is regarded as an amply sufficient character upon which to found a new genus; that this is so, as a general rule, I do not deny, but that it is a rule with exceptions is evidenced by the abnormally-veined individuals of well-known species, to which, from time to time, I have thought it of importance to call attention.

I have long held the view that, as no species or genus is absolutely fixed and stationary, it should be possible not only to find links between species, but also between genera, and I have looked upon aberrations of structure especially when often recurring in individuals of the same species, either as the commencement of a new generic type, or as a reversion to an ancestral type.

In my revision of the sub-family *Pierinæ*, in vol. i of "Cistula Entomologica," I separated the genera into three main divisions, differing in the number of sub-costal branches in their front-wings—whether three, four, or five; and, so far, I had never had cause to doubt the completeness of this arrangement; but, wishing recently to find some good structural character for separating *N. Buquetii* and allies from *Nepheronia*, to which externally they bear but little resemblance, I carefully re-examined their structure, beginning with our seven examples of *N. arabica*; to my astonishment, the first specimen I examined possessed only four instead of five sub-costal branches; I took up another, and yet another specimen, until I had examined five, still with the same result; when, just as I was beginning to make up my mind that I had before me a widely distinct genus, I took up the sixth specimen, and then the seventh, both had five sub-costal branches; I next examined *N. capensis*, five; three unnamed species, five again; *N. Buquetii*, five; *N. Ægia*, five. It thus becomes evident that five out of our seven specimens of *N. arabica* ought to be referred to Division 2 of my Revision, and the remaining two to Division 3, or, in other words, if neuration be arbitrarily adhered to, that there exist two widely distinct genera in the individuals of one and the same species, and that the aberrant character is the prevalent one in this species.

Once more, knowing that a prevalent variation is likely to become (by interbreeding) the normal one, there can be little doubt that in a comparatively short time *N. arabica*, instead of being, as its describer supposed, a mere variety of *N. Buquetii*, will be a widely distinct genus, and one that may even, at some future period, be regarded as a mimic of its common ancestor.

British Museum:
February, 1886.

DESCRIPTION OF THE LARVA OF *SCOPARIA MERCURELLA*.

BY G. T. PORRITT, F.L.S.

On the 14th of April last, I received from Mr. W. H. B. Fletcher, of Worthing, a box containing mosses, in which were feeding (living in silken galleries) a number of *Scoparia* larvæ, but of what species Mr. Fletcher was uncertain. The mosses I submitted to my friend Mr. C. P. Hobkirk, who named them *Isothecium myurum*, and *Hypnum cupressiforme*, var. *elatum*; and at the end of July and beginning of August a beautifully marked series of *Scoparia mercurella* was produced from the larvæ.

On April 16th, I described the larvæ as follows:—

Length, about half to five-eighths of an inch, and moderately stout; head polished, the lobes rounded, it is scarcely so wide as the frontal plate, and still narrower than the 3rd segment; body cylindrical, and of almost uniform width, tapering only a little at the posterior extremity; segmental divisions deeply cut; skin smooth, and slightly glossy; the frontal and small anal plate, with the large round tubercles, polished.

In adult specimens, the ground-colour is a dingy straw-colour, but in young examples it is strongly suffused with a darker dirty greenish tinge, which dark colour seems to be gradually lost as the larva attains maturity. Head dark brown, with frontal streak and mandibles still darker sienna-brown; frontal plate very dark sienna-brown, almost black indeed; tubercles olive-brown, the anal plate with a slightly greener tinge. A very faint, narrow, brown, pulsating vessel forms the dorsal line, but there are no perceptible sub-dorsal or spiracular lines.

Ventral surface and prolegs the same colour as the ground of the dorsal area, and placed transversely on segments 5 and 6 are three olive tubercles; legs black, ringed with olive.

Huddersfield: *February* 15*th*, 1886.

Abundance of Sphinx convolvuli at Scilly last August.—I was there at Christmas, and was shown two specimens of *S. convolvuli* at Tresco Abbey, and was informed that there had often been five or six at a time buzzing in the conservatory. A large larva had been brought in from the island of Bryher, which was supposed to be of this species, and there were said to be many more. But as they were not seen by any entomologist, this must remain uncertain.—F. JENKINSON, Trinity College, Cambridge: *March*, 1886.

Occurrence in Herefordshire of Lithocolletis distentella, a species new to Britain.—Having spent some time in the autumn of 1884 in seeing how far it might be possible to separate the mines of the different common *Lithocolletis* of the oak from one another, I found that at the end of the season I had among various assortments a small collection of five or six specimens, from which there issued in the following summer, two moths, which Mr. Warren kindly identified as the above species. He tells me that in Staudinger's Catalogue the localities given are France, Switzerland, and Germany, and the food-plants *Quercus Robur* and *pubescens*: further, that it is figured in Herrich-Schäffer, 756, and that this author records that it was bred at Zürich by Professor Frey. As a short description will, probably, not be out of place, I append one.

Pale saffron, with a silvery-white unmargined basal streak, and four costal and two dorsal ones internally dark-margined; the first costal streak is continued along the extreme edge of the costa towards the base, and a curved dark line runs through the apical fringe. It is a large, well-marked insect, and with the dark hook in the fringe not likely to be mistaken for any of our other species.

Now for a word on the mine, to many, probably, the most interesting part of the subject, more especially as I hope to be able to show that it can be separated without difficulty from most if not all of our other numerous oak-feeders. The mine is large, sometimes occupying the middle of the leaf between two of the main ribs, and then much resembling the mine of *roboris*, at others, and this is the more common form, crossing the ribs and lying along the edge of the leaf; in both forms arching the leaf considerably. Such are its general features; the more special ones by which it is distinguished from its allies are the absence of a cocoon; the pupa being simply suspended by a few cross threads in the centre of the mine, whereas, in all others I am acquainted with, viz., *roboris*, *Cramerella*, *lautella*, *quercifoliella*, and *messaniella*, a cocoon of some kind is constructed; and in the second place, the presence of a few fine wrinkles only, without any plait or fold on the under-surface of the mine, this plait being present in all the species mentioned above with the exception of *roboris*, in which it is completely absent as in *distentella*.

Allusion has already been made to the general likeness of the mine of *roboris* to one form of that of *distentella*, and this additional and important resemblance might be expected, at least in some instances, to make it a matter of difficulty to distinguish between them by an external examination alone; opening the mine to ascertain the condition of the pupa would settle the question at once, but as this is an operation not unattended with danger, any means by which it can be avoided would be desirable. Now *roboris*, it is well known, leaves a large patch of parenchyma untouched in the middle of the mine upon which to spin its cocoon, and contrasting strongly with the skeletonized portion all round; but in *distentella* this patch is not only much smaller, but, what is more important, it is imperfect, the larva having nibbled little holes all over it or even broken it up into two portions,—a careless, slovenly habit, perhaps, correlated with the absence of a cocoon. This difference in the manner in which the leaf has been browsed is so easy of recognition and, so far as my experience goes, so reliable, that such minor points as the lesser arching of the leaf in *roboris*, and the fewer and finer wrinkles on the under-side are scarcely wanted to decide between them.

My specimens were collected in September and October on under-growth in a wood, and I have again, in the autumn just past, met with a few more in the same locality. It appears to prefer small-leaved bushes.—John H. Wood, Tarrington, Ledbury: *February*, 1886.

Lithocolletis sorbi, Frey.—The identity of the *Lithocolletis* from mountian ash, generally known as *aucupariella*, Scott, has long been rather a sore point with me, as I have always (though almost single handed) maintained its distinctness from *pomifoliella*. Within the last two years, certain fresh facts connected with it have tended still more to confirm me in my opinion that it is truly a good and distinct species. In the autumn of 1854, I was in a small plantation in the upper part of Weardale, on the edge of the moors, where a few small trees of *Prunus padus* were growing. *L. sorbi* was plentiful on the mountain ash, as it usually is with us, at high elevations. I caught sight of a *Lithocolletis* mine on the *Prunus*, and further search produced more; in all about two dozen. Thinking that it might be a novelty I communicated at once with Mr. Stainton, who told me that a species from the *Prunus padus* was known on the Continent as *padella*, Glitz.

A fair proportion of them duly emerged the following spring, identical with the mountain ash species. I forwarded them to Mr. Stainton at the end of the season. He told me that the continental specimens were lighter and brighter in colour, but declined to give any opinion as to their distinctness from *pomifoliella*. Looking over them very carefully one day, I noticed, for the first time, that the tarsi were different to those of *pomifoliella*, which are pale and ringed with dark, but, like those of *spinicolella*, pale and unicolorous. Now I never find either *spinicolella* in the sloe, or *pomifoliella* in the hawthorn on the high grounds where I take the mines of *sorbi*. I have been told that mines are common in the South of England in the mountain ash, and it will be of interest to hear to which group the moths produced from them belong. There are no mines in the mountain ash here, although *pomifoliella* and *spinicolella* are common enough, the former especially. *Prunus padus*, so little attacked by *Lepidoptera* (always excepting *Hyp. padi*), must have rather close affinities with *Sorbus aucuparia*, as I saw a series of remarkably fine *Argyresthia spiniella*, which had been captured from the bird-cherry by a friend of mine last autumn, and there is no mountain ash in the neighbourhood, so they had undoubtedly fed on the tree.

The mines of the *Lithocolletis*, probably from the thinness of the leaves, were very large, and the leaves often, in consequence, quite recurved, exactly like the leaves of honeysuckle mined by the larvæ of *L. trifasciella*.—J. SANG, 33, Oxford Street, Darlington: *February* 15*th*, 1886.

Probable food of Trifurcula pallidella.—Professor Zeller noticed in 1861, that on the Carinthian Alps this insect flew amongst *Genista sagittalis*, and suggested that it was probably attached to that plant, just as *T. immundella* is attached to the common broom (Ent. Ann., 1862, p. 140). Wocke in his conclusion of Heinemann's "Schmetterlinge Deutschlands und der Schweiz," Zweite Abth., Band ii, Heft ii, p. 726, says the only specimen he took in Silesia was on *Genista germanica.*

I have been led from the above to infer that with us the insect will be found attached to *Genista tinctoria*, and when writing to Mr. A. F. Griffith the other day about his two specimens recorded at p. 65 of this volume, I put to him the question if he could remember whether they had been found amongst *Genista tinctoria?* His reply was very satisfactory: "My two specimens were taken one evening in a waste corner of a field, near St. Alban's, which was covered with *Genista tinctoria*, together with *Scabiosa succisa*, *Hypericum*, &c. There are plenty of scattered plants of *Genista* in the neighbourhood, but this particular corner had been left uncultivated for several years, and had become quite grown over with the *Genista tinctoria.*"

My inference that *Genista tinctoria* grew in the very locality where the specimens of *Trifurcula pallidella* had been captured by Mr. Griffith has thus been very fully confirmed.

Unfortunately for the anticipations of those who may have been hoping to place a series of the insect in their collections, Mr. Griffith added: "Last year I went there one day and found the whole place ploughed up."—H. T. STAINTON, Mountsfield, Lewisham: *March* 8*th*, 1886.

Insects at Shiere in 1885.—Although the greater part of the year 1885 was not very productive in insect life, yet I met with several species worth noting, some of which I have not before observed in this neighbourhood.

Among the *Coleoptera*, *Oodes helopioides* occurred under cut reeds, and *Harpalus caspius* on the chalk hills; *Luperus flavipes* on oak; *Cryptocephalus moræi* in the blossom of hawthorn, and *pusillus* in abundance on *Brachypodium pinnatum*; *Magdalinus pruni* and *cerasi* on blackthorn, and a few *atramentarius* in hedges; some sand-pits afforded *Chrysomela Gœttingensis*, *Calodera umbrosa*, *Tachyusa scitula*, *Myrmedonia limbata*, *Homalota elegantula*, and *scapularis*, and also several specimens of the rare *Euplectus Kunzei*, while casual sweeping gave *Ceuthorhynchus* *arcuatus*, and *setosus; Hylesinus oleiperda* (several), *Colenis dentipes, Anisotoma dubia* and *parvula, Apion ebeninum;* and on the 19th of June I captured in the same way an example of *Aphodius villosus*, swept off short grass on Albury Heath. Early in June I took one of *Molorchus minor*, and in the same place the beautiful *Eros minutus; Bruchus canus* and *cisti* both occurred on *Helianthemum vulgare*, and with them I met with *Mordellistena humeralis, pumila*, and *brevicauda*. In September I met with *Phlœophilus Edwardsii*, and a specimen of *Lissodena Heyana*, which I have taken here once previously; and in October the curious and uncommon *Pseudopsis sulcatus* was at last taken in a haystack, an insect I had long searched for in vain, with it occurred *Cryptophagus umbratus, Micropeplus margaritæ*, and *Heterothops dissimilis*. The much neglected group of *Homoptera* yielded several good things. In the last week of February I beat out of some young yew trees many fully developed examples of *Tettigometra impressopunctata*, which had evidently hibernated; with them I also took a male of *Idiocerus elegans*, Flor, and during the summer took many females of the latter on sallow. *Liburnia lineata*, Perris, ♀ was not uncommon in the spring, in one grassy spot, but I could take no ♂. Among the better species I also took *guttula, speciosa, Fieberi, niveimarginata*, and *mesomela*, and the fine *L. longipennis*, Curtis, was plentiful on Gomshall Marsh in the autumn. *Stiroma affinis, pteridis*, and *albomarginata* all occurred, and one of the much less common *nasalis, Athysanus canescens*, and *Doratura stylata* (one developed) were taken on Albury Heath, also one of *Eupelex cuspidata, Acocephalus bifasciatus*, and *histrionicus* were also taken, the latter seems very distinct from the common and similar looking *flavostriatus*. *Hymenoptera*, especially the Aculeate and larger *Ichneumonidæ*, were not at all abundant; I may, however, mention among the former several *Crabro cetratus*, the ants *Ponera contracta, Tetramorium lippula*, and the ♂ of *Myrmosa melanocephala*, and in the latter *Excenterus lituratorius, Gnathoxys marginellus*, and *Phytodietus rufipictus*, Brischke, the latter new to Britain. The *Braconidæ* were much better represented, as I can include among my captures the following species: *Spathius clavatus* and *rubidus, Phanonesis catenator, Rhypalus clavator, Hornius moniliatus, Hecabolus sulcatus, Doryctes imperator* and *spathiiformis, Clinonectrus excubitor, Diachasma fulgida* and *caffer; Utetes testaceus*, and *Laccophrys cephalotes* (new to Britain) with many others.

It was, however, the *Oxyura* that gave the prize of the year, for on June 15th I had the good fortune to beat into my net a fine example of *Dryinus formicarius*, Lat., an insect I believe only once before recorded in England.

During a short stay at Bournemouth in April, I found *Trechus rubens, Platyderus ruficollis*, and *Cassida oblonga* under sea-weed, and on the sand hills *Apion sorbi*, and *Sitones cambricus;* and at Hayling Island in August I met with *Heterothops binotata, Homalota vestita* and *plumbea* and on the mud of the æstuary the pretty Alysid, *Idiaster maritima*.—EDWARD CAPRON, Shiere: *Feb.*, 1886.

Anchomenus Sahlbergi, Chaud., a species new to Europe.—A short time ago, while examining the *Anchomeni* in Dr. Sharp's collection, I came across three specimens set aside as undetermined near *A. parumpunctatus;* as Dr. Sharp kindly allowed me to identify them I tried to do so, but as I could find nothing that agreed with them among the descriptions I had access to, I sent a specimen to M. Bedel, who returned it as probably *Agonum archangelicum*, which J. Sahlberg described in 1879: he also was good enough to copy the description for me from L'Abeille, xix, p. 433: as, however, I did not feel certain of the species, I communicated with Professor Sahlberg, who very kindly sent me one of his three specimens of *A. archangelicum*: on comparison with Dr. Sharp's specimens, I saw at once that they did not agree, and again wrote to Prof. Sahlberg, regarding *A. Sahlbergi*, a species that he had mentioned as near his species; I also sent him one of Dr. Sharp's specimens. This he has just returned with an authentic specimen of *A. Sahlbergi*, and it is evident that they are identical, and that *A. Sahlbergi* must be henceforth regarded as an European insect; the following is the description :—

A. Sahlbergi, Chaud. (Bull. de Mosc., 1850, iii, 117, 30).—Upper surface of a unicolorous bronze-coppery colour; under-side black, with a slight greenish metallic reflection; head moderately large, with two impressions in front of eyes; vertex smooth; antennæ rather long, entirely black; thorax sub-quadrate, with sides not strongly rounded, slightly contracted to base; anterior angles marked; posterior angles very blunt, almost completely rounded, with central furrow distinct meeting a transverse furrow in front, and a small but plain and rather deep round or oblong depression a little before base; the usual depressions near posterior angles are well marked; elytra of female considerably widened behind, and narrower towards base; of male more parallel sided, with fine striæ and broad flat interstices, which are extremely finely shagreened; third interstice with three pores; legs deep black. Long., 7½—8½ mm.

Three specimens, one male and two females, taken by Mr. Henderson on the banks of the Clyde, below Glasgow, Scotland, about 20 years ago; Dr. Sharp believes it was also taken by Mr. Bishop at the same locality; it has hitherto occurred in Eastern Siberia, and has not before been found in Europe.

From *A. parumpunctatus* this species differs in the following points: the thorax is narrower and longer in proportion, with the sides less rounded and more evidently, though very gradually, narrowed towards base; the upper-side is of a unicolorous coppery colour, and the antennæ and legs are entirely black, whereas in *A. parumpunctatus* the thorax is almost invariably more or less greenish-metallic, and the tibiæ and first joint of antennæ are pale; in the female the elytra are more widened behind than in the corresponding sex of *A. parumpunctatus*; the central furrow of thorax in the latter species is nearly always clear and uninterrupted to base, but in *A. Sahlbergi* and *A. gracilipes* it meets a depression before base.

A. Sahlbergi may at once be distinguished from *A. gracilipes*, which it much resembles, by having only three pores on the third insterstice of the elytra, whereas the latter species has five or six; the thorax is rather narrower, and the posterior angles much less pronounced; the deep black legs and antennæ will also distinguish it. In *A. gracilipes* the tibiæ, although darker than in *A. parumpunctatus*, are distinctly pitchy and not deep black, and the first joint of the antennæ is reddish beneath; the colour of *A. gracilipes* is also redder and less coppery, and the sides of the elytra are much more parallel in the female, and not or scarcely dilated hehind.

Anchomenus archangelicus (*Agonum archangelicum*) very much resembles *A. Sahlbergi*, but has the thorax rather shorter and broader, with the sides more rounded in front and more contracted behind; it is, however, easily distinguished by the much deeper striæ of the elytra, and the convex interstices; the anterior angles of thorax are also less pronounced.

In the specimen of *A. Sahlbergi* sent me by Professor Sahlberg, there is a broad depression near scutellum, and the posterior angles of the thorax are very slightly more marked; Professor Sahlberg also tells me that some of his specimens are a little less depressed. Dr. Sharp, however, agrees with me in considering that the Scotch specimens must be referred to this species; at all events, while quite distinct from the other allied species, they so closely agree with this one that it would be impossible to describe a new species upon them, especially when we remember that many *Anchomeni* present certain variations accordingly as they are found in mountainous or lowland districts, a fact that Professor Sahlberg notices in his letter to me, as probably explaining any slight discrepancy.—W. W. Fowler, Lincoln: *March* 17*th*, 1886.

Apion annulipes, Wenck.—I have for several years had a doubtful specimen of an *Apion*. When sending a box to M. Bedel recently, I enclosed this specimen for his opinion, knowing that he is at present working at this genus. He returned it as the *A. annulipes*, Wenck. In his articles on New British *Coleoptera*, &c., the Rev. W. W. Fowler (Ent. Mo. Mag., vol. xx, p. 44) states that only two specimens, both females, of this species have been previously captured in Britain. My specimen is a male. The exact locality where my specimen was taken is unknown to me, but it has been collected in this neighbourhood. I shall be glad of any information as to the food-plant of this species.—J. W. Ellis, Liverpool: *March* 14*th*, 1886.

An abnormal Apion pallipes.—While examining my *Apions* of last year's capture, I found a ♂ example of *A. pallipes*, Kirby, from Birchington, the right posterior femur of which is armed beneath with a tolerably large and sharp tooth, while the corresponding limb is perfectly simple. At first I thought that the specimen might possibly be a hermaphrodite, but, as toothed femora are not among the male characters of beetles belonging to this genus, my specimen must, presumably, be a monstrosity. I have carefully examined some fifty examples of *A. pallipes* in my own and other collections without finding a similar specimen.—Theodore Wood St. Peter's, Kent: *March* 5*th*, 1886.

A luminous insect larva in New Zealand.—Whilst collecting recently after dark beside a densely shaded creek near Auckland, New Zealand, I observed the precipitous earthy banks of the creek illuminated with great numbers of a larva, which has, I believe, never been reared. It resembles in general appearance an Annelid, being about an inch and half in length, very slender, slimy, and without apparent organs; but under a microscope (as Professor Hutton has shown me) the head appears that of a predaceous Coleopterous larva, *e. g.*, of one of the *Staphylinidæ*. The light consists of a small, bright, greenish-white, erect flame, rising from the back of the neck. The larva burrows in the earth, exposing the head and anterior portion from the burrow, but having in front of them a sort of irregular slimy network. They occur in great numbers; I have counted fifty in a square foot of surface. The same or a similar species has been noticed in caves and mines elsewhere in New

Zealand. It is impossible for a wandering entomologist to attack a larva of these habits; I should, therefore, be interested if any reader can give me a clue to its systematic identification. I suppose that it is carnivorous, feeding on minute insects, which it entangles in the slimy network; and I conjecture that it uses its lamp (as I do mine) to attract them, or, perhaps, to see to eat them.—E. Meyrick, Wellington, N. Z.: *January 24th*, 1886.

[There is distinct necessity for further information (with examples in fluid) respecting the animal noticed above. The larvæ of *Staphylinidæ* are ordinarily so like the perfect insect in form (allowing for absence of elytra, &c.), that we venture to doubt the connection of the animal with that family.—Eds.]

The South London Entomological and Natural History Society, *February 18th*, 1886: R. Adkin, Esq., F.E.S., President, in the Chair.

Mr. South exhibited a long series of *Hydræcia nictitans*, Bork., for the purpose of comparison with a specimen of the same species exhibited at the last meeting by Mr. Chaney, and which was not then identified. Mr. Adkin also exhibited a specimen which closely resembled that of Mr. Chaney. Mr. Rose exhibited series of *Bryophila perla*, Fb., from Lea Bridge and Eastbourne, *Boarmia repandata*, L., from Rannoch, and a variety of *Acidalia emarginata*, L., taken at Herne Bay. Mr. Hall, series of *Cleoceris viminalis*, Fb., and *Xanthia fulvago*, L., both bred from Derbyshire larvæ. Mr. South said that some of the specimens of the latter insect looked like dark forms of *X. flavago*, Fb. Mr. Tugwell exhibited specimens of the supposed new *Crambus*, together with *C. inquinatellus*, Schiff., and *C. contaminellus*, Hb. Mr. Tugwell stated that he first took this *Crambus* at Deal in 1877, and he believed the time of appearance to be July and August. Mr. Tutt had taken the species in some numbers at Deal, and Mr. Coverdale had found it at Shoeburyness. Mr. Adkin also exhibited a specimen of this *Crambus*, and the species to which it approached very closely, viz., *C. inquinatellus*, *C. contaminellus*, and *C. geniculeus*, Haw. Mr. Billups exhibited the following species of *Coleoptera*, viz., *Meligethes exilis*, Sturm, and *Anthicus Schaumi*, Wol., from Lincoln; *Hydnobius Perrisi*, Fair., *Mycetoporus nanus*, Grav., and *Omalium rugulipenne*, Rye, from Hartlepool; also three species from West Africa belonging to the family *Cetoniidæ*: *Ceratorhina Morganii*, White, *C. Grallii*, Buq., and *C. Hornimanii*, Bates.

March 4th, 1886: The President in the Chair.

Mr. Billups exhibited a female specimen of *Sirex gigas*, L. Mr. Wellman exhibited a series of *Bankia argentula*, Hb., from Cambridge. Mr. Oldham, dark forms of *Satyrus Janira*, L., taken in North Wales. Mr. Adkin, specimens of *Nyssia hispidaria*, Fb. Mr. South, two specimens of *Lycæna Icarus*, Rott. (*Alexis*), one of them a remarkably small specimen, the expanse of wings being only 10 lines, taken at Folkestone, 1885, while the other, from Sligo, measured 1 inch, 5 lines. Mr. Frohawk, a case containing a long and varied series of *Melitæa Aurinia*, Rott. (*Artemis*, Fb.), coloured drawings of the larvæ and pupæ, also specimens of an ichneumon he had bred from the pupæ of this species. Mr. Billups stated the ichneumon was *Panteles glomeratus*. Mr. Tugwell again exhibited specimens of the supposed new *Crambus*, for which Mr. Tutt had suggested the name of *cantiellus*, and said that he had now seen the Blackheath form of *C. contaminellus*, Hb., and felt convinced it was identical with the insect from Deal. Herrich-Schäffer figured the Lancashire form of *contaminellus* very minutely under this name, whilst Hübner, under the same name, figured most correctly the Deal insect. Now, there were evidently two different representations either of two forms of the same insect, or, probably, of two distinct insects, both having been named *contaminellus*, but the question must remain an open one, until the insect had been bred. There were exhibits in other branches of Natural History: Mr. Step exhibiting a case of bird's-eggs from Leith Hill, and Mr. Cook several mounted specimens of birds from Hampshire.—H. W. BARKER and W. A. PEARCE, Hon. Secs.

ENTOMOLOGICAL SOCIETY OF LONDON, *March 3rd*, 1886: R. MCLACHLAN, Esq., F.R.S., President, in the Chair.

The following Fellows were elected, viz.:—Mr. J. M. C. Johnston, of Denmark Hill, S.E., and Cav. Piero Bargagli, of Florence.

Mr. Pascoe exhibited a Lepidopterous larva from Pará, with peculiar cephalic processes—probably that of a *Papilio*; also the puparium of the Brazilian race of *Anosia Plexippus* (*Danais Archippus*) from the same locality.

Mr. Williams exhibited for Mr. Bartlett a gigantic (7 inches) Lepidopterous larva received from Madagascar; in general characters it resembled the larva of *Gastropacha*.

Mr. C. O. Waterhouse exhibited certain Columbian *Coleoptera*, some apparently new.

Mr. Billups exhibited a rhyncophorous beetle, found alive in a well-known horticultural sale room in London; Mr. Pascoe stated that it was *Cholus Forbesii*, and South American.

Mr. Eland Shaw alluded to Mr. Olliff's notes on the aquatic habits of *Tettix australis*, read at the last meeting, and showed that, from old records (which he cited), such habits had been recorded for Indian species of the same genus.

Prof. Meldola communicated, on behalf of Dr. Fritz Müller, notes by the latter on the economy and synonymy of "Fig Insects," especially with regard to a paper published by Her Gustav Mayr ("Feigen-insecten") in 1885, the materials for which had been furnished by Dr. Müller from the district of the Itajahy in South Brazil. Dr. Müller sent illustrative specimens in alcohol; the object of the notes and exhibition was to show that in South Brazil several of these insects presented trimorphic conditions, and that the synonymy was thereby naturally affected.

Mr. Poulton read a continuation of his remarks on Lepidopterous larvæ and pupæ. This paper was illustrated by diagrams and magic-lanthorn slides. It concerned the ontogeny of certain *Sphingidæ*, the protective markings and attitudes of *Sphingidæ* and *Dicranuridæ*, and of *Acronycta leporina*. An important part of the paper consisted of the results of observations on the enormous loss in weight (by evaporation) sustained by newly-formed Lepidopterous pupæ. A discussion followed, in which many Fellows took part.

ON THE CASE, &c., OF *AGRAYLEA MULTIPUNCTATA*, CURT. (= *HYDROPTILA FLABELLIFERA*, BREMI).

BY KENNETH J. MORTON.

In the "Stettiner entomologische Zeitung" for 1864, will be found a memoir by Dr. Hagen, entitled, "Ueber Phryganiden–Gehäuse." The first portion of it especially, based in great part on the correspondence of the author with Bremi, contains much valuable information concerning the earlier conditions of the *Trichoptera*, and several problems of unusual interest relating to the life histories of these insects are brought forward. That some of these problems have remained unsolved to the present day, is due, I think, more to a lack of observers than to the difficulties their solution presents, although aquatic insects are necessarily less easy to deal with than others. And on this subject of rearing I may here quote the following remarks from Eaton's Monograph of *Ephemeridæ*: — "In the absence of elaborate contrivances many *Ephemeridæ* can be bred in captivity if confined in flower-pot saucers, or other wide vessels containing little water, duly protected from extremes of temperature. If the bottom be glazed inside it should be thoroughly strewn over with sand or fine river-gravel, that the insects need not die of fatigue in struggling to maintain their footing upon it." These directions suit equally well the *Trichoptera*. An increase in the number of vessels is preferable to the adoption of large ones, since small vessels lend themselves better to exactness of observation; and in every case I recommend the use of river-sand, a little of which put into the phials containing minute species appears to give all that is required for the maintenance of life.

At page 115 of Dr. Hagen's paper, we find under *Agraylea? Gehäuse*, a quotation from one of Bremi's letters, in which is described the finding on water-plants during the summer, of some caddis-cases similar to those which Pictet figures on pl. 20, fig. 10, of the "Recherches" (*Hydroptila pulchricornis*), but differing therefrom on account of *Confervæ* being made use of in their construction. Very broad and flat femora of the fore legs, and long, sharp, strongly bent claws distinguish the larva, which, when in motion, carries the case on the angle, and is able to put its head out at either end. When the larva passes into the nymph state, the case is said to be fixed at each of the four corners by means of a stalked fan-like patella. A second letter states that it is only when the larva changes that the case assumes its characteristic oblong form, and that as long as the larva is feeding the form of the case does not differ from that of those of other *Hydroptilidæ*. It is repeated that the case is carried on the sharp angle, and composed only of *Algæ*. Bremi applied to this remarkable creature the provisional name of *Hydroptila flabellifera*. He never reared the perfect insect, but a nymph supposed to have come out of one of the cases, Hagen referred with doubt to *Agraylea*. According to Hagen the case of the larva is yellowish, transparent as if made out of thin glue; structure of the employed vegetable matter not visible. Long., 3 mm.; lat., 1 mm.; oblong, widened in the middle, flat, open at both ends. The principal point in connection with the larva is the great length of the middle and posterior-legs. The nymph-case is dark brown, less transparent; long., 5 mm.; lat., 1½ mm.; flat, form exactly as in larval case. At each of the four corners is fastened an appendage (pilzartiger Anhang) with a short pedicel. It may be remarked, that Bremi's words seem to imply that a difference exists between the form of the case of the larva and that of the nymph, while Hagen says explicitly there is none.

Further information on *Hydroptila flabellifera* is given in McLachlan's "Monographic Revision of the European *Trichoptera*." That author, after referring to a note by Bremi in the "Mitth. naturf. Gesell. Zürich,"* 1848, p. 62, and Hagen's account, proceeds to notice larvæ found by Dr. Barker (Quarterly Journal Micr. Science, new ser., vol. vii, p. 175) and Eugène Guinard (Mém. Acad. Sci. Montpellier, vol. ix, pp. 139—143), both of which he considers to have been the same as Bremi's. It appears that M. Guinard actually bred the insect (which he named *Leiochiton Fagesii*); but as he is not an Entomologist, his published description and figures do not suffice for identification.

It was on the 3rd and 5th of November last that I received, through the kindness of Mr. McLachlan, two cases with larvæ, forwarded to him by Mr. Bolton of Birmingham, which in the main points agreed with Hagen's description. Interesting in themselves, they possessed a double interest, since, though they had been known so long (assuming all the above citations and the cases I had before me to belong to one and the same species), they had always evaded satisfactory elucidation. They were delicate looking things, and my hopes of being able to rear the insects were not great. The wished-for result came about at a most unlikely time. About Christmas, I was surprised to see signs of a change. The semi-transparency of the case allowed one to get some idea of what was going on within, and in a few days it was evident the nymph stage had been reached. Now, out of more than a dozen species of *Trichoptera* which I have bred, in no instance has this stage extended over more than five weeks, and I was therefore curious to know whether we had here to do with an exception to what seemed a general rule. But no; on the 25th of January, while there was deep snow lying on the ground, a perfect ♂ of *Agraylea multipunctata* appeared. The equable temperature of the room, in which there was a fire kept burning night and day, had no doubt the effect of "forcing;" and it may be mentioned that on the day of appearance, the hard frost that had prevailed for some time shewed signs of giving way.

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* "Bern" is an error in my original citation.—R. McL.

I regret that I was not able to confirm what Hagen says about the larva. To have made a description would have involved the destruction of one of my examples, and that, with the limited materials, it was undesirable to risk. But with regard to the long posterior-legs, I may say other larvæ, presumably *Hydroptilid*, possess such, and surely Pictet too strongly emphasizes the shortness of the legs in his figures.

From the first my larvæ were sluggish, and the cases were almost constantly fixed by the four cables to the glass (once, one of them was fixed almost totally out of the water); however, I did see them in motion, and was able to confirm the statement that the case is borne along on the angle—a habit apparently not uncommon in the family. The final fixing was effected precisely as Bremi describes: the case was placed on the flat and each of the corners attached to the glass by means of a silken cable of many threads, which spread out at the point of attachment in a fan-like way (giving rise to Bremi's expressions—"Eine gestielte fächerförmige Patella," and "Händchen und Aermchen"). The case is of a brownish colour, but when viewed as a transparency, its basis appears to be of an amber-coloured substance, and round the two ends are seen to be wrought filaments of *Confervæ* in curves, concave side inwards, and these filaments are likewise carried narrowly along the sides, leaving a longish oval in the centre composed of the basis-substance only. The form may be called oblong; the ends are slightly rounded, and the sides produced a little. The reason of the more commodious middle part—for in addition to the produced sides, the oval central part is doubtless elastic—is very obvious, and I had often the pleasure of seeing the larva turn round and present its head at the end opposite to that which it had just left, the revolution being made in the roomy middle part. Without doubt the end openings are also elastic, and close on the withdrawal of the head of the larva. Pictet gives this form of opening as an universal character of the case of *Hydroptilidæ* (Recherches, p. 224), but if I mistake not, there are exceptions. Fritz Müller says, with regard to the *Hydroptilidæ* of the Brazils, that they include the most varied and remarkable larval cases; and I believe that even our own species when thoroughly known, will be found to have cases of most diversified structures, and habits of the greatest interest.

Carluke, N.B.:
March 8th, 1886.

THE LIFE-HISTORY OF *NONAGRIA BREVILINEA.*

BY W. H. B. FLETCHER, M.A., F.E.S.

This curiously local moth was discovered in the Norfolk Fens in 1864, by Mr. Fenn (Ent. Mo. Mag., i, p. 107), but, I think, little or nothing has as yet been published about its earlier stages. In April, 1880, Mr. E. G. Meek told me that he bred two specimens the summer before from larvæ taken among those of *Leucania straminea* and other species. He added that they were external feeders, and, I believe, on various plants; but of the latter point I am not quite sure. Thanks to the untiring kindness and great liberality of Mr. F. D. Wheeler, of Norwich, I am now able to give some further particulars of the life-history.

On July 30th, 1884, I received by parcel post from Mr. Wheeler six females taken by him in Ranworth Fen. The next day, a very hot one, was spent in moving from Worthing to Deal. No wonder that after two long journeys in such weather my friend's kindness only just escaped being in vain! However, eight eggs were laid by a fine specimen of the form "*sinelinea.*" They were laid singly, and were very loosely glued to the lining of a band-box. They were of the usual *Noctua* shape, and ribbed in both directions. They were at first of a very pale cream colour, after a few days of an equally light pink, and in the middle of April, 1885, they assumed a dull purple hue.

The larvæ began to hatch towards the end of the month. All but one died before the right food-plant was hit upon. Plants of many Natural Orders, including several grasses, were offered in vain. One larva took up its natural position on the leaf of a small *Carex*, and ate a few mouthfuls, but no more. It and six of its fellows died after a few days' life. The last larva was hatched on May 6th, and was placed in a lamp-chimney with some shoots of *Arundo phragmites*. I soon had good evidence that it had entered the stem of one of the reeds just above the point where an unfolding leaf diverged from the central shoot. I did not see this larva again until May 17th, when the old food-plant was broken up and re-placed by fresh. It was then about to moult.

The following description was taken:—Rather slender; length about $\frac{3}{16}$ inch; head, corselet, and anal plate brown; body very light brown, almost white between the segments, spots rather large, black, surrounded by pale rings, with rather long black bristles; dorsal and sub-dorsal lines white.

On May 20th, it was found to have moulted, most likely soon after the above description was taken. It was now nearly ¼ inch long, and fairly stout, head, corselet, and anal plate very pale brown, body pale yellowish-green; dorsal, sub-dorsal, and spiracular lines white, spots small, with very short black bristles. When placed on a reed, it took up its position on the upper-side of the base of a leaf which was just unfolding itself from the stem. Here the larva remained for some days, during which it nearly bit off this leaf, and gnawed the still unfolded one above it considerably.

I described it on June 8th, as follows:—Nearly ¾ inch long; cylindrical, not tapering much at either end; head and plates pale brown, the former rather darker at the top of the lobes; the lines broad, white, edged with brown, darker than that of the general surface of the body; spiracles black; legs and claspers almost colourless. Having started from its former position at the base of the leaf-blade, the larva had gnawed a spiral tunnel in the reed-stem, making two turns in ¾ of an inch. The "frass" was all thrown out. I took it out of the old reed on June 17th, and by the next day it had bored its full length into a fresh one, having made its entry as before. On June 19th it came out of its burrow and spun a silken pad on the muslin at the top of the lamp-chimney, on which to undergo its last larval moult. Unluckily, it lost its hold and died at the bottom of its prison.

On June 20th, Mr. Wheeler most kindly went with me to Ranworth Fen to hunt for the larvæ in their own home. It was a cold, showery day, and for the best part of the afternoon our search was in vain. At last, in a small alder carr, we were rewarded by finding some sixteen or seventeen larvæ, all of which Mr. Wheeler most generously insisted on my taking home with me. These larvæ fed just like my lamented friend. They entered at the tops of the reeds, bored down two of the joints and made holes as they went, through which to eject their frass. All the larvæ but two were head downwards. The forwardest were of the same age as the one I had reared from the egg. The *work* of the larvæ was shown by the reeds being withered at the top; not always their *presence*, however, for we found many empty mines, and many full of frass and tenanted by the larvæ of *Calamia phragmitidis*, those made by the larvæ of *N. brevilinea* being always clean.

On June 21st, I returned home and placed the larvæ with reeds in lamp-chimneys and tins. Some of them at once came out of their burrows and spun pads on which to moult. By June 24th some of them had changed their skins, and the leaves of the reeds had been eaten at their edges, like some that we had noticed in the fen. To prove that the larvæ are really external feeders when mostly full-grown, I secured a newly-moulted larva on June 28th, and kept it without food for twenty-four hours. When food was given it, it began by eating a burrow as long as itself in the stem of a reed, it then came out and fed only on the leaves until it pupated, always resting on the outside of a reed or in some old hollow stems given it for the purpose. This, I think, is the usual mode of life, for on July 5th, I looked through the cage containing the rest of the larvæ, eight of them being then alive, and found a few empty burrows about the length of a larva and the leaves much eaten at the edges.

On June 28th, I described a nearly full-grown larva. With the change from internal to external feeding it had become quite handsome. In markings and colour it greatly resembled the larvæ of *Neuronia popularis* or *cespitis*, but was not nearly so stout.

Length, about 1⅝ inch, of average thickness in proportion; head light brown, with slightly darker markings near the top of the lobes and about the mouth; body pale ochreous, almost obscured by thick reticulation of olive-brown; dorsal, sub-dorsal, and spiracular lines broad pale yellow, the last being the palest, with central stripes of orange, all the lines show on the second segment, the dorsal and sub-dorsal reach almost to the posterior edge of the anal flap, and the spiracular to the posterior claspers; spiracles black; legs pale brown; pro-legs concolorous with the pale ventral area.

Pupa about ⅝ inch long, of usual *Noctua* shape, *i. e.*, not long and thin as those of *Nonagria geminipuncta*; dull red; eyes, antennæ, legs, and wings rather faintly defined; anal segment ending in two stout bristles, $\frac{1}{20}$ inch long, remote at their bases, approaching each other near the middle of their length, and bent outwards at the ends to form hooks; around them were three or four shorter and thinner bristles, curled at their points. The object of these bristles being, I suppose, to anchor the pupa-skin firmly to the cocoon during the escape of the moth.

The cocoons were formed on the surface of the soil, rather slightly, of silk, and a few pieces of cocoa-nut fibre and moss interwoven with it.

The moths, four in number, emerged during the last week in July.

Fairlawn, Worthing:
April 10th, 1886.

THE HABITS OF THE IMAGO OF *NONAGRIA BREVILINEA*.

BY F. D. WHEELER, M.A., F.E.S.

My friend Mr. Fletcher, to whose zeal and skill we are now indebted for a knowledge of the larva of this local species, has, with characteristic modesty, requested me to supplement his life-history of the species with some account of the habits of the perfect insect.

My first acquaintance with it dates back to 1870, when Mr. C. G. Barrett introduced me to the Ranworth Fens—a red-letter day (or rather night) in my entomological diary, so many were the experiences crowded into a few hours : first chasing swallow-tails in the afternoon, involving experimental acquaintance with the nature of bogs ; then the wonderful sight, to a novice, of *Nonagria despecta* hovering and fluttering all over the fen in countless numbers; and later, *Apamea fibrosa*, *Nonagria fulva*, *Nudaria senex*, *Lithosia griseola*, and the var. *stramineola*, *muscerda*, and *camplanula*, all in profusion, while numerous other species entered into the catch—all combined to impress it on my memory, and not least the fact that it was my first trip with Mr. Barrett, my "pater entomologicus."

It was while boxing three or four specimens of *N. despecta* from the net, that my attention was caught by a *Noctua* sitting on a reed stem, with wings still soft and rather crumpled. Even my ignorance recognised it as a "wainscot," and not one of the common ones, and Mr. Barrett at once assured me that it was a specimen of the then *unique N. brevilinea.** It was not until some years later that my acquaintance with the insect was renewed, circumstances preventing me from collecting in the fens for the next season or two, but in 1871 Mr. Barrett took three specimens (I believe) by sugaring, usually a most unprofitable method of work in the fens. Then between 1873 and 1877 some numbers were taken by Messrs. Farn, Bird, Jenkinson, Barrett, and others, chiefly by working the honeydewed leaves of the sallows late at night. In common with most of the fen *Noctuæ*, *brevilinea* is powerfully attracted by this natural banquet, and by searching the leaves with a lamp may be readily secured, either by boxing it at rest, or more easily by netting as it flies off. But this method is by no means equally productive in all seasons, the supply of honeydew being sometimes scanty and poor, and it is by means of the attracting lamp that the species is best known to me. In 1878 Mr. Fletcher, during a month's visit to Ranworth, turned it up thus in some plenty, and from that season to the last I have never failed to meet with it, in fluctuating, but, on the whole, increasing numbers. Considering its wide range over the Bure fens, at least from Horning Village to St. Benet's Abbey, it is surprising that this insect does not seem to have yet extended its quarters up the Ant, though it certainly occurs at the mouth of that river; probably, however, it may do so ere long, though it is noteworthy that a considerable difference exists in the insect fauna of different spots, even in the same range of fens.

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* The captures of Mr. King, made in the same season, were as yet, of course, unknown.

In habit of flight, *N. brevilinea* is intermediate between the wild dash of *L. impura* and the steadier motion of the true *Nonagriæ.* Before dark it begins to be on the move, and I have found 8.30 to 9 p.m. the most "lively" time for it. During this half hour and the next, on a favourable night, it affords much exercise to its would-be captor. Early in the evening moths are never much attracted by light, but the lamp serves to show everything that passes, and the *Noctuæ* generally diverge from their course enough to come within a long reach as they dash by. During a trip last season, one of Mr. Barrett's sons, who accompanied me, gifted with active legs and wielding a mighty net, was particularly successful in this way. Making charges out into the darkness beyond the circle of the lamp, and frantically striking with the big net, he generally brought back his spoil. Before 10 p.m. the first flight is over, and thenceforward during the night an odd specimen may be taken now and then, usually coming straight to the lamp, and secured with comparative ease; when the morning is beginning to dawn it flies again more freely, but the morning flight is but a feeble imitation of that of the evening. Of course, these details refer to a good night; if the weather be unfavourable, scarcely a specimen will be seen.

Perhaps the insect most nearly resembling *N. brevilinea* when on the wing is *L. impura* (by no means so great a pest, by the way, in the deep fens as might be imagined, while *pallens* is almost absent), but a very little practice suffices to distinguish them, and the commoner species is but little attracted to light.

I have occasionally taken *N. brevilinea* at rest, *in cop.*, and also flying in the open fen, but if one's captures depended on these methods alone, it would still be a rarity in collections.

In conclusion, I may say that, in common with almost all who are acquainted with the species, I believe it should be transferred to the genus *Leucania*, which in habits and form it far more closely resembles; and the discovery of the larva has made this belief as to the propriety of its removal from the *Nonagriæ* a certainty. The genus *Leucania* itself, however, is a very heterogeneous one as to the larval habit of the species it embraces.

Paragon House, Norwich:
April, 1886.

Nyssia hispidaria near Horsham.—When shooting near Horsham, March 20th, I took a beautiful specimen of *N. hispidaria* ♂, at rest on an oak tree.—W. C. Boyd, College Road, Cheshunt: *April 15th*, 1886.

ENTOMOLOGICAL FIELD NOTES AT SÛAKIN.

BY N. MANDERS.

The insect-fauna of the Sûdan being at present little known, any notes on the region will be interesting; and, therefore, I venture to record the scanty information I obtained during the campaign in the neighbourhood of Sûakin last spring.

So much has lately appeared regarding our various operations there, that any detailed remarks on the country itself would be superfluous; but I was somewhat surprised to find the country, especially near the mountains, supporting a vegetation in some parts decidedly thick, and not altogether the barren waste I had imagined. From the top of the isolated hill at Handoûb (12½ miles inland), the country looks fairly well-wooded and a fine expanse of green meets the eye, which is continued up to quite the foot of the mountains, being more luxuriant in the neighbourhood of the water-courses which dry up during the spring months.

The vegetation was of the character usually found in tropical deserts; Mimosas, thorny Acacias, and various species of *Euphorbiæ* preponderating, the former ran commonly to the size of a thorn-tree, usually very dense, covered with creepers and armed with thorns of of an alarming character. One species known to us there as the "umbrella Mimosa," and which I am told is peculiar to the Sûdan, is remarkable inasmuch as it throws out branches in every direction immediately above the ground, and presents a plane surface of closely approximated small flat green leaves which it is impossible to see through, and which, consequently, considerably aided the Arabs in carrying out their sudden attacks.

Flowering plants were naturally not abundant, still I think I might have collected about a score of different kinds; but I had no means of carrying or preserving them. One species—yellow with a red centre, something like a foxglove—was very fine and conspicuous.

Animal life was far more abundant than I had expected, but the night dews were very heavy, and were due to the cool night winds from the sea condensing the hot vapour given off from the earth; often on waking I found my blanket wet through, and the early mornings were very cold, so that condensation must have taken place very rapidly.

The butterflies more particularly engaged my attention, and of these *Pyrameis cardui* was by far the commonest; *Danais Chrysippus* was also not uncommon and in splendid condition, but too difficult for me to catch with my improvised net of mosquito netting and telegraph wire. I saw at least two species of "orange-tip," and was so fortunate as to catch one which Mr. Butler informs me is new. It is interesting as being extremely similar to species from the Soumali country. Two "blues," *Azarius Zena* and *A. Gamra* were decidedly common; the former has a peculiar habit of flying in swarms round the thorn bushes reminding one of *Lithosia rubricollis.* Another butterfly also new was not uncommon, flying low amongst rank grass, but was difficult to capture on account of the intense glare arising from the sand; Mr. Butler will shortly describe this novelty. Moths were apparently scarce; but numerous Micros belonging, I think, to some genus akin to *Lithocolletis* were not uncommon on the glass of our lamps in the evening; but I saw no *Noctuæ,* unless a large moth, very like an "under-wing," belonged to this genus, but it persistently declined my offers to an intimate acquaintance; it was a day-flier very strong on the wing, and had a disappointing habit of soaring when I was very nearly within range.

Beetles were not numerous, being, to a large extent, kept under by the extraordinary number of lizards which swarmed everywhere; however, I saw one particularly handsome fellow which put me in mind of the "Diamond beetle" of Brazil; it flew strongly in the hot sunshine and did not appear to be very uncommon though I failed to make a capture. The only other beetle, at all common, was a large black one which had an annoying habit of getting amongst one's kit and crawling over one at night, which made one think of scorpions. Of these latter, some spots where we encamped seemed to swarm with them, whilst at others we were more fortunate. I was much impressed by my first sight of a real live specimen, and my ideas derived from dried-up museum specimens received a rude shock. I hesitate to give the dimensions of one we captured, but the officer under whose bed it was found assured me that he had never seen a larger in India; all we captured were of a semi-transparent green colour. Several men were stung and suffered severely; and, following their usual tactics, the creatures were very fond of getting amongst the blankets at night, and not uncommonly repaying their unconscious host by an unfriendly sting in the morning.

Mosquitoes were remarkable for their absence, and this I attribute to the want of water in which the larvæ are reared.

Concerning house-flies it is unnecessary to speak, suffice it to say that they swarmed in the tents more particularly in countless thousands, until the extreme heat killed them off. I believe "*Musca domestica*" cannot survive a heat bordering on 100° in the shade; at any rate, they almost entirely disappeared towards the end of April, and no one regretted their departure. It was curious how entirely free horses were from flies, &c., there was none of that constant whisking of tails and shaking of heads we are accustomed to during the summer months in England; and this again I attribute to the want of water (flies are thirsty creatures), and great heat.

In conclusion, though I only brought home some half-a-dozen different kinds of butterflies, yet I saw many more, the majority, probably, new; for instance, I saw a grand *Pieris* on the day of the engagement at Hasheen; but the small opportunities, constant and multifarious duties, and, not least, the decided risk of being myself captured, prevented me from doing justice to an interesting country.

Army Medical Staff: *February*, 1886.

Variety of Larva of Acherontia Atropos.—Last autumn I had brought to me a beautiful example of the variety of the larva of *Acherontia Atropos*, which is mentioned in Stainton's "Manual," but which was perhaps even more remarkable than the variety there described. In this instance the three anterior segments, instead of being of the usual yellow hue, and without markings, were pure white with a broad dorsal marbling of deep black, which came down on each side like a double saddle. The remaining segments were without the oblique markings on the sides, but down the back there was a broad chain of diamond-shaped links and purple tracery. The anal horn and spiracles were as usual; unfortunately, it buried itself before there was any opportunity of sketching it.—James Balding, Wisbech: *March*, 1886.

Queries concerning the habits of certain British Tortrices.—Being engaged on a revision of the British Tortrices, and desirous of making my facts as complete as possible up to the present date, I shall be grateful for any information, whether positive or suggestive, as to the food-plants and larval habits of any of the following species, still, as far as positive information goes, quite unknown, and of opinions tending to confirm or modify the accompanying statements concerning certain species whose previous states are more or less ascertained; or concerning the habits of others in the imago state.

Tortrices of which the larvæ are still unknown:—*C. cinctana*, Schiff., *bifasciana* Hb., *hybridana*, Hb., *osseana*, Scop. (*pratana*, Stn.), *argentana*, Cl., *B. Woodiana*, Barr. *A. sellana*, Hb., *E. purpurana*, Haw., *M. Schultziana*, F., *palustrana*, Z., *S. olivana*, Tr. (*micana*, Stn.), *umbrosana*, Frr. (*alternella*, Stn.), *irriguana*, H.-S., *Doubledayana*, Barr., *cespitana*, Hb., *latifasciana*, Haw., *ravulana*, H.-S., *R. arcuella*, Cl., *O. ulmana*, Hb., *C. cæcimaculana*, Hb., *microgrammana*, Gn., *H. pauperana*, Dup., *S. upupana*, Tr., *S. spiniana*, Dup., *S. compositella*, F., *internana*, Gn., *leguminana*, Z., *E. puncticostana*, Steph., *H. fimbriana*, Haw., *A. Mussehliana*, Tr., *Hartmanniana*, Cl. (*Baumanniana*, Stn.), *subbaumanniana*, Wilk., *E. albicapitana*, Z., *gilvicomana*, H.-S., *flaviciliana*, Wlk., *Degreyana*, McL., *Manniana*, F. R.

Statements requiring confirmation concerning certain Tortrices.

A. prodromana: "On the wing freely from 9 till 11 a.m., April 20th." E. W. Int., 1856, p. 28.

A. ochroleucana: "On rose and fruit trees?" Heinemann.

A. sellana: ? In flower heads of *Centaurea nigra* and of *Plantago lanceolata.*

P. Lecheana: "Often full-fed by end of April." Heinemann. ? full-fed in autumn.

N. Udmanniana, S. tripunctana, roborana, rosæcolana, suffusana: do the larvæ of these hibernate small?—that of *incarnatana* does.

L. campoliliana: ? "Two broods, v and viii," Snellen.

H. Paykulliana: How does the larva feed?

A. derasana: How many broods, one or two?

A. obtusana: How many broods? What is the true food plant?

O. ulmana: ? "in leaves of *Aquilegia vulgaris*," Frey. ? on wych-elm and on hazel.

R. arcuella: On hazel inside the twigs.

E. trauniana and *regiana:* Has any one ever seen either actually feeding beneath the bark?

E. argyrana: ? On leaves or in bark of oak and other trees.

H. fimbriana: ? "In rotten wood," Heinemann.

G. Albersana "Hibernates full-fed," Snellen: where and how does it feed?

C. microgrammana: ? on *Ononis spinosa.* How, and when?

G. citrana: ? Mining young shoots of yarrow, ? on flowers of *Artemisia campestris*," Jourdheuille.

E. fractifasciana and *quadrana:* ? "in heads of *scabious*," Jourdheuille.—W. Warren, Merton Cottage, Cambridge: *April*, 1886.

Amara nitida, Sturm.—Previous to the appearance of last month's number of the Ent. Mo. Mag., which contains my notice of the capture of a species of *Amara* new to Britain, and which had been determined by Herr Reitter as *A. montivaga*, Sturm, I had received a communication from the Rev. W. W. Fowler to the same effect as his editorial foot-note to my record; with a recommendation that the specimen should be submitted to M. Louis Bedel, of Paris. This I did, and received from M. Bedel, but not in time for a correction of last month's article, a note in which he states most decidedly that the *Amara* is, as suggested by Mr. Fowler, the *A. nitida*, Sturm. This species, like the one that the specimen was previously referred to, is quite new to our fauna, though a native of middle and northern Europe. *A. montivaga*, according to M. Bedel, differs from *A. nitida* in having black tibiæ, the posterior angles of the prothorax less rounded, and the scutellary striæ of the elytra are provided with a large umbilical pore.—J. W. Ellis, 3, Brougham Terrace, Liverpool: *March 14th*, 1886.

[The *Amara nitida* of Stephens (Illus. Mand., i, p. 129), is the common *A. plebeia*, and has nothing to do with the above-mentioned insect.—W. W. F.]

Tachinus scapularis and elongatus at Lewisham.—Last June I obtained from decayed mangold wurzel at Lewisham specimens of *Tachinus scapularis* and *elongatus*. —A. Beaumont, 30, Ladywell Park, Lewisham: *April*, 1886.

Coleoptera at Falmouth.—I spent a week at Falmouth, from March 8th to 15th, and endeavoured, during this time, to work the district for *Coleoptera*. The east wind, even in this extreme south-west corner of England, had, however, lost none of its bitterness, and the only sheltered place I could find was the sandy beach under the low cliffs to the westward of Pendennis Castle. Here I had the pleasure of seeing *Aëpys marinus* alive for the first time, under stones at high water mark, but it required a lot of working for, and I succeeded in finding only three specimens. An even more welcome sight was that of the tiny and active *Actocharis Readingi* (hitherto, I believe, recorded as British from Plymouth only), of which a couple of specimens were found running on the under-sides of large stones sunk in the sand, in places where a little trickle of fresh water came down from the cliffs above. *Philonthus fucicola* was common here (also at Mylor, on the shores of the harbour), accompanied by the var. *variolosus* of *P. xantholoma,* and many of the usual littoral *Staphylinidæ,* &c. In the lanes, almost the only beetle to be obtained was *Phlœophagus æneopiceus,* which occurred plentifully in old stumps in the hedges: its favourite food appeared to be ash, though I found it also in oak, hawthorn, and elder, as well as traces of its former presence in holly.

A good looking piece of marshy ground at the head of a large piece of fresh water near the shore, about a mile west of Falmouth (called Swan Pool), produced nothing better than *Pæderus fuscipes.*

A few unset specimens of *Phlœophagus æneopiceus* are at the service of any Coleopterist who may wish for the species.—James J. Walker, H.M.S. "Cherub," Portland: *March 31st,* 1886.

Description of the nymph of Psylla mali, Schmidtberger.—Pale green, shining, with a fringe of pale hairs round the front of the head, costal margin of the elytra-lobes, and apex of the abdomen, those round the latter longest. Head: anterior margin flattish-convex, crown flattish-convex, with a minute fovea on each side of the centre between the eyes. Eye-caps whitish, through which shines a somewhat round, small, dark spot. Antennæ greenish-yellow, apex black. Pronotum with two foveæ in front on each side of the centre, and another pair near the posterior-margin, the latter larger than the former. Elytra-lobes whitish, opaque, with a small notch on the costal margin at the extremity of the suture. Legs green, apex of the tibiæ and claws dark brown. Abdomen, in one sex, somewhat convex above and underneath, contracted at the base, whereby the acute extremities of the elytra-lobes overhang the sides; in the other sex somewhat ovate; extreme apical margin very narrowly clear brown in both sexes.

The insect in this state is to be met with very commonly on apple trees, generally from the middle to the end of May.—John Scott, Lewisham: *Feb. 17th,* 1886.

Description of the nymph of Psyllopsis (Psylla, Foerst.) fraxinicola.—Pale green, thickly farinose. Head: anterior-margin almost straight; eyes brown or slightly reddish-brown; antennæ pale yellowish, apex black. Elytra-lobes pale greyish-white, costal margin with a fringe of short hairs. Abdomen somewhat oval, slightly convex transversely, pale green, thickly farinose; apex somewhat thickly clothed with long, fine, white hairs of irregular length. Legs white, extreme apex of the tibiæ and tarsi black. As it approaches the perfect state, the abdomen, especially towards the apex, becomes clothed with long, white, curled hairs or filaments, and the head and elytra-lobes also in a more or less degree. They live on the under-side of the leaves of the ash (*Fraxinus excelsior*), in the beginning of July, but do not cause any deformation, and are generally found in little colonies, partly, or sometimes entirely, enveloped in a fine, soft, loose, farinose secretion. When disturbed they are very active.

In the "Verh. der k. k. zool.-bot., Gesellschaft in Wien," for 1879, p. 587, Dr. Franz Löw gives his reasons for the separation of the above species and *Ps. fraxini* from the genus *Psylla*, Foerster, and other authors, and amongst other characters he points out the remarkable shape of the genital processes (Zange) of the ♂ when viewed from the side. In *Ps. fraxinicola* these are hatchet-shaped, and in *Ps. fraxini* hammer-shaped, and are easy of recognition with the aid of a pocket-lens. There are only two other European species known (*discrepans* and *meliphila*), which, like ours, are also attached to the ash.—Id.: *March 9th*, 1886.

Note on Trioza remota, Foerster, together with a description of the nymph.—This *Trioza* was described by me in the "Transactions of the Entomological Society," for 1876, p. 557, under the name of *T. hæmatodes*, which is a synonym of it, as are also *T. cinnabarina*, Förster, and *T. dryobia*, Flor. It is a common species, and is frequently found on fir trees, if growing in the vicinity of the oak on which it has passed through its various stages, thereby misleading collectors.

The nymph is of a pale green colour, flat, broad, about three-fourths as broad as long. Head: anterior-margin almost straight, with a border or fringe of short, pale, shining, fine stiff hairs placed closely together; eyes reddish-brown. Antennæ short, whitish, or very pale greenish, apex brown. Thorax: upper-side very pale green, more or less spotted with yellow down the middle. Elytra-lobes almost white in front, extending beyond the head; costal margin with a fringe of short, pale, shining, fine stiff hairs placed closely together. Abdomen very pale green, down the middle more or less spotted with yellow, outer margin with a fringe of hairs similar to those on the head and elytra. Legs very pale green, or almost white, apex brown.

They are to be beaten at the end of March and beginning of April from oaks, on the under-side of the leaves of which trees they live, apparently singly, and without causing any deformation.—Id.: *March 10th*, 1886.

Newspaper Entomology.—A correspondent has forwarded a cutting from a Scotch newspaper, which we reproduce. The words italicised by us seem to indicate that a knowledge of elementary entomology is desirable in some quarters in Great Britain, as well as in South Africa:—

"*A Scourge of Caterpillars.*—Much alarm has been caused in the Camperdown district of Durban, says the *Cape Times* of March 6th, by the scourge of armies of caterpillars, which have appeared amongst the forage crops. One army extends a mile and a half deep, and has swept over seventy acres of fine forage. It is now going in a westerly direction. Another, comprising many millions, has eaten every bit of forage in one district. By to-day the two armies will have joined, and threaten Boston. It is feared it will do more damage than the visitation of the 1878 pest.

It makes its appearance in the form of a small moth, with velvety-black body and head, green stripes along sides, and is about quarter-inch long. In a few days *it sheds wings, becoming a caterpillar, and in a week it lays eggs, each caterpillar producing two hundred!!* It grows two inches, and it blackens the field as they move about voraciously eating. In one place forty acres of forage were reduced to stubble. Even grass has been eaten up."

This astonishing statement is, however, eclipsed in a London paper usually well-informed, where we read:—"In common with other countries, Natal has been troubled with an insect plague which has played sad havoc with the crops. It seems to be of the genus *Aphis*, of which there are many varieties, and a description of it is appended, in order that those suffering from a similar pest in other parts of the world may compare notes:—The pest makes its appearance in the form of a small moth, &c., &c."—EDS.

THE SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, *March 18th*, 1886: R. ADKIN, Esq., F.E.S., President, in the Chair.

Messrs. G. Day, T. H. Hall, W. D. Gooch, and J. W. Tutt were elected Members of the Society. Mr. South exhibited specimens of *Vanessa Callirhoë*, Fab., bred from larvæ found at Teneriffe, and contributed some interesting notes. Mr. Wellman exhibited dark forms of *Hypsipetes elutata*, Hb., from Barnsley. Mr. Mera, dwarf forms of *Lycæna Ægon*, Schiff., *L. Icarus*, Rott., and *Vanessa cardui*, L. Mr. Adkin, reddish forms of *Tæniocampa gracilis*, Fb., which he said he understood were bred from larvæ obtained in the Kentish Marshes, but the specimens exhibited were very different from the ordinary Kentish form. Mr. Carrington stated he had taken this form of *T. gracilis* in the New Forest, but it was really the Scotch form of the species. Mr. Henderson exhibited the following insects from Lundy Island:—*Ichneumon xanthorius*, Foerst., *Lacon murinus*, L., and a species of *Tenthredopsis*. Mr. Billups, the following species of *Coleoptera*:—*Demochroa gratiosa*, L., from the Malaccas, *Clinteria chloronota*, F., from Ceylon, *C. confinis*, F., from N. India, and *Polydæis puber*, F., *Onthophagus gazella*, *O. Marsyas*, *O. 4-punctata*, Ol., and *Bricoptis variolosa*, Ol., from Madagascar, and *Anthia sexguttata*, Lat., from India, and read a short paper on this latter species. Mr. E. Joy read notes on collecting *Lepidoptera* at Wicken Fen.

April 1st, 1886: the President in the Chair. Messrs. C. H. Watson, G. P. Shearwood, Stanley Edwards, A. Beaumont, and B. W. Adkin were elected Members. Mr. Goldthwaite exhibited series of *Cænonympha Typhon*, Rott., and *Erebia æthiops*, Esp. Mr. Cooper, *Drepana binaria*, Hufn., *D. cultraria*, Fb., and *Erastria venustula*, Hb., from Epping Forest; imagines and pupa cases of *Eupæcilia ambiguella*, Hb., from the New Forest, and varieties of *Lycæna Icarus*, Rott. Mr. J. T. Williams, a fine series of *Eriogaster lanestris*, L., and a long column of varieties of *Hybernia leucophearia*, Schiff. Mr. E. Joy, *Nyssia hispidaria*, Fb. Mr. Stevens, *Petasia nubeculosa*, Esp. Messrs. South and Tugwell, fine series of *Hybernia marginaria*, Bork., var. *fuscata*. Mr. South said the specimens exhibited were bred from ova received from Mr. J. Harrison of Barnsley, who stated, that the eggs were deposited by a dark female which had been in union with a melanic male. Mr. Billups exhibited the following *Coleoptera*, taken by him in Headley Lane on the 22nd March, 1886:—*Panagæus quadripustulatus*, Sturm, *Lebia chlorocephala*, Hoff., and *Brachinus crepitans*, L.; also two species of *Diptera*, *Sciaria pulicaria*, Hoff., and *Trichocera regelationis*, L., bred from apples.—H. W. Barker and W. A. Pearce, *Hon. Secs.*

Entomological Society of London, *April 7th*, 1886: R. McLachlan, Esq., F.R.S., President, in the Chair.

The following were elected Fellows, viz.:—Messrs. E. Capron, M.D., J. B. Bridgman, F.L.S., T. D. Gibson-Carmichael, F.L.S., A. C. Horner, J. T. Harris, Evan John, A. Sidney Olliff (formerly Subscribers), F. D. Wheeler, M.A., of Norwich, J. W. Ellis, L.R.C.P., of Liverpool, J. Rhodes, F.R.M.S., of Accrington, Martin Jacoby of Kentish Town, J. A. Clark of Hackney, and George Elisha of Shepherdess Walk, City Road.

Mr. Crowley exhibited a large number of *Lepidoptera* from Accra, W. Africa, including long series of *Charaxes*, *Rhomalæosoma*, &c., and a series of fine *Saturnidæ* from Natal. He stated that he was assured that the larvæ of several species of the latter entered the earth in order to undergo transformation to pupæ.

The Rev. W. W. Fowler exhibited the examples of *Anchomenus Sahlbergi*, Chaud., from the banks of the Clyde, noticed by him in this Magazine, p. 264 *anté*, and an example of *A. archangelicus*, Sahlb., for comparison.

Mr. Slater exhibited, on behalf of Mr. Mutch, a spider of the genus *Galeodes*, and a *Cetonia* apparently presenting monstrosity in the elytra, but which was owing to intentional reversal in position in one of them.

Mr. Billups exhibited *Bassus bizonarius*, Grav., from Peckham, a species of *Ichneumonidæ* new to Britain, and a series of *Dimeris mira*, Ruthe (*Braconidæ*), recently taken in Headley Lane, Surrey.

Mr. White exhibited preserved larvæ of species of *Catocala*, calling attention to the remarkable processes on the under-side; and Prof. Meldola and Mr. Jenner Weir made remarks thereon.

Mr. S. Edwards exhibited an apparently exotic spider from an Orchid House at Blackheath.

Mr. H. Goss exhibited two remarkable varieties of the ♂ of *Argynnis Paphia*, taken in Sussex and Hampshire respectively.

Mr. A. G. Butler communicated a paper, "Descriptions and remarks upon five new Noctuid moths from Japan."

The Rev. W. W. Fowler read a paper on "New genera and species of *Languriadæ*," from materials in the British and Cambridge Museums, and the collections of Mr. G. Lewis and the Rev. H. S. Gorham. He stated his reasons for the elevation of *Languriadæ* to family rank, and gave notes on the habits. Dr. Sharp and Mr. Champion made remarks on this latter subject.

Dr. Sharp read a paper "On some proposed transfers of generic names," occasioned by a pamphlet recently published by Mons. Des Gozis, in which that author transferred and transposed many of the most familiar generic names in *Coleoptera* (such as *Carabus*, &c.), on the grounds that the current application of these names is opposed to the intentions of the original authors of them. Dr. Sharp stigmatized the proposed changes as unsound, and objectionable as occasioning confusion. A long discussion ensued, in which Messrs. Fowler, Waterhouse, Dunning, Pascoe, McLachlan, &c., took part, the proposed changes advocated by M. Des Gozis being universally condemned.

END OF VOL. XXII.

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